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CARCINOMA IN EARLY LIFE.*

WITH SPECIAL REFERENCE TO EARLIER METHODS IN INTRA-VITAM DIAGNOSIS.

BY WALTER L. BIERRING, M.D.

Professor of Pathology and Bacteriology, State University of Iowa; Pathologist to the University Hospital.

IOWA CITY, IOWA.

Carcinoma is usually regarded as the malignant tumor of later life, having its legitimate age limit at 35, though it is most frequently met with after 40 years of age.

With increasing study of the malignant neoplasms, age is gradually losing its hold as a criterion of difference between sarcoma and carcinoma, the former being found at almost any age, while carcinoma is beginning to be noticed more frequently during the earlier decades of life.

Having had the opportunity of examining the material from nine cases of carcinoma between the ages of 23 and 35 years, I have incorporated the same in the subject of my paper, and drawn from them such points as were of pathologic interest.

CASE 1.—Mrs. A. F. R., presented herself in the private practice of Dr. L. W. Littig, who has kindly furnished the clinical data. She was admitted to University Hospital, Dec. 6, 1898, and was 23 years old, married, and had one child 3 years old. The family history as regards tuberculosis and neoplasms was negative. Her health was good to within six months of admission, after which time she had pain in the pelvic region and offensive discharge from the vagina.

Physical examination of the thoracic and abdominal organs, with the exception of the uterus gave negative results; vaginal examination revealed an indurated, warty, slightly ulcerating growth involving the cervix uteri, extending a short distance on to the anterior and posterior vaginal walls; displacement of the uterus did not exist.

A clinical diagnosis of epithelioma of the cervix uteri was proposed and operative removal advised. Following operation, Dec. 8, 1898, of abdominal hysterectomy, no unfavorable post-operative symptoms appeared, except a rather unusual interference in the complete healing of the abdominal incision, by the appearance, a short time after the operation, at the site of suture wound, of a papillomatous, granuloma-like growth which gradually increased in size and within five months presented a warty ulcerating growth the size of a lemon, which had all the macroscopic characteristics of a surface carcinoma or epithelioma. This growth was removed by a second operation on May 11, 1899.

The examination of the uterine growth revealed a complete involvement of the cervix uteri by the tumor mass, which presented a histology of delicate fibrous stroma separating irregular, narrow bands or rows of pavement epithelial cells, the latter showing numerous karyokinetic figures, and at the edges of the tumor area, indications of extensive infiltration into the muscular structure of the corpus uteri. The diagnosis was carcinoma.

The microscopy of the secondary growth removed from the site of abdominal incision presented a similar arrangement of large, irregular alveoli of pavement epithelial cells, enclosed by a delicate fibrous connective tissue stroma like that in the primary growth.

CASE 2.—This case was in the service of Dr. J. C. Shrader, at Mercy Hospital, in Mrs. M. G., aged 26 years, married, with no children. Her family history as regards cancer was negative. Her general health was good, but during the past five years she had been annoyed by pruritus of the external genitals, accompanied by the slow development of a warty, ulcerating growth at the point of irritation.

Physical examination revealed an ulcerated, painful area on the left labium majus, with papillomatous, indurated edges, being 1½ inches long by ¾ inch in width; two enlarged lymph nodes were noted in the left inguinal region.

Operation for removal of primary growth and involved lymph nodes was performed Nov. 15, 1897, and there has been no recurrence to date.

The microscopic examination revealed the typical picture of epithelial proliferation from the surface, and formation of distinct nests or pearls of pavement epithelial cells in the deeper tissues as common to, and indicative of, squamous-cell epithelioma.

CASE 3.—This case occurred in the service of Dr. J. W. Dalbey, in the University Hospital, in O. E. C., a male laborer, aged 28 years, and single. His family history as regards cancer was negative. The right lower eyelid presented an ulcerated area three-quarters by one-half inch, with proliferated edges, which, according to the patient, had been gradually developing during the past five years. This was removed by operation on July 6, 1899, primary union following and no recurrence.

Microscopy revealed irregular columns of pavement epithelial cells extending down from the surface, with well-marked epithelial nests, beneath the surface, giving the characteristic histologic picture of pavement-celled epithelioma.

CASE 4.—The patient was seen in the medical service of Dr. L. W. Littig, in the University Hospital, viz.: R. R. T., aged 30 years, a farmer and single. When presented, Nov. 9, 1897, he gave a history of indefinite symptoms with reference to disturbances in digestion, and distress in the epigastric region; during the two months previous to entrance he had noticed a tumor-like enlargement below the left rib-border. There was no marked localized pain.

Physical examination of the thoracic organs was neg-

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ative; in the epigastric and left hypochondriac regions a defined area of dulness was noticeable, having a transverse diameter of 3½ inches, palpation revealing a movable, circumscribed growth not influenced by respiratory movement, and separable from the hepatic and splenic areas of dulness.

A diagnosis of tumor abdominalis was proposed, the nature of this by reason of the age of the patient, being left indefinite, and exploratory operation advised. The latter was not granted and the patient passed from observation until death occurred, Feb. 8, 1898.

The post-mortem examination, by request of the relatives, was confined to the abdominal cavity. General emaciation was very marked; panniculus adiposis was greatly diminished. On opening the abdomen a large mass the size of a child's head was found involving the greater curvature of the stomach and the transverse colon; the mass, with adherent organs, was removed; the liver presented a high grade of fatty infiltration but no evidence of metastatic involvement; the spleen was not enlarged, and the kidneys were negative.

Closer examination of the tumor mass showed such an intimate connection with both the large intestine and the stomach as to render it difficult to distinguish from which organ it had its origin. The mucous surface of the stomach was smooth, the wall presenting a diffuse thickening which gradually merged into the tumor mass. In the lumen of the transverse colon extensive ulceration was noted corresponding to the tumor area.

In the microscopic section, representing a section through the mucous membrane of the stomach and into the substance of the tumor mass, the mucous membrane appears atrophic, and the tubular glandular structure is almost obliterated; in the submucosa, irregular tubules are seen, filled with cubical epithelial cells; deeper, elliptical and oval alveoli are noticeable, filled with cells, while narrow columns of cells—sometimes composed of single rows of cells—are seen radiating and infiltrating the fibrous stroma in all directions. Fatty degeneration in the larger cell collections is noted, and numerous karyokinetic figures are seen. The diagnosis was adenocarcinoma, most probably of stomach origin.

CASE 5.—This occurred in a patient of Dr. W. D. Middleton, at the University Hospital, viz.: W. R., aged 32 years, also a farmer and single. When admitted, he presented a large, ulcerating growth of the right side of the face, extending down on to the side of the neck for a distance of two inches, exposing the inferior maxillary bone in several places; the growth was of two years' standing. Microscopic section of particles removed from different portions of the growth gave a typical picture of epithelioma.

Coley's mixture of erysipelas and prodigiosus toxins was used in the therapy without appreciable benefit and the patient died in the hospital, two months after entrance. An autopsy was not granted.

CASE 6.—This case occurred in the practice of Dr. R. W. Hill, Davenport, Iowa, to whom I am indebted for the following: Mrs. N., aged 34 years, gave a history of several years of constipation, leading to almost complete obstruction when first observed by the attending physician. There was no emaciation, no localized pain, no distinct tumor, but a stenosis due to neoplasm was diagnosed and operation advised.

Laparotomy revealed an obstruction of the descending colon just above the junction with the sigmoid flexure, due to a neoplastic growth encircling the intestine. Resection was performed, removing about five inches of the colon and sigmoid flexure, the end of the descending colon being fastened to the abdominal wall, to form an artificial anus, while the resected end of the rectum was inverted upon itself. Death occurred five days after operation, from peritonitis.

The gross pathologic appearance of the resected portion of intestine reveals a dense tumor mass enveloping the lumen of the intestine to the extent of two inches, constricting the same so that it admits but the passing of a finger; the entire growth being about the size of a lemon. No ulceration of the mucous surface is present; the cut surface of the tumor presents a dense structure in which numerous areas of mucilaginous softening are noticeable.

Microscopic examination of a section including mucous membrane and a large extent of the growth proper, shows no change in the mucosa, but in the submucous area are noted numerous oval-shaped alveoli more or less completely filled with short columns or cubical epithelial cells. Aside from the alveoli, areas are noted which are quite devoid of cells, and are filled instead with a delicate fibrous material giving the reaction of mucin. The stroma of fibrous connective tissue shows but slight retrograde change. A diagnosis of acinous carcinoma undergoing extensive myxomatous degeneration, was made.

CASE 7.—Miss G. W., aged 34 years, a dressmaker, was admitted Jan. 4, 1899, to the surgical service of Dr. W. D. Middleton, at the University Hospital. Her family history with reference to cancer was negative, and her health good until one year ago, when a small lump was noticed in the right breast, which rapidly enlarged and has been accompanied by sharp lancinating pains.

Physical examination revealed a large, rather circumscribed, slightly movable tumor mass involving the entire area of the right mamma; the surface about the nipple was retracted and over the gland proper, broken by numerous sinuous openings from which milky purulent-like discharge was escaping.

Operation was performed Jan. 5, 1899, comprising extirpation of the tumor and the gland, with three enlarged axillary lymph-nodes.

The cut surface of the tumor presents a growth of semisolid consistency, extending in various directions from the nipple into the substance of the gland, the size of the tumor being about that of a small cocoanut.

Microscopic sections stained in hematoxylin and eosin method, and by Van Gieson's method, reveal elliptical, oval, and irregular alveoli filled with cubical epithelial cells, surrounded by bands of dense fibrous tissue, the fibrous stroma and cell collections being about evenly distributed. The stroma presents occasional small areas of mucoid degeneration. Central areas of cells in the larger alveoli show marked granular and fatty changes. Numerous karyokinetic figures are seen throughout the cell areas. A diagnosis of acinous carcinoma was made.

On March 8, 1899, a secondary recurrent nodule of chestnut size, was removed from the site of the scar of the first operation, and possessed the same structural characters as the primary growth.

CASE 8.—This case occurred in the surgical service of Dr. W. D. Middleton; admitted Feb. 1, 1899. Mr. J. A. G., aged 35 years, married, jeweler, gave no family history of carcinoma, but a history of an attack of acute articular rheumatism of six months' duration, two years preceding admission; during this severe abdominal pain was a prominent symptom. Eight weeks previous to admission he noticed a palpable swelling just below the rib-border in the right mammary line. When first noticed it was of the size of a hen's egg, but gradually enlarged

and was the site of considerable pain which radiated out into the abdomen. Emaciation and anemia were marked.

Physical examination of the thoracic organs gave a negative result. In the right hypochondriac region a palpable, movable tumor, orange-size, was felt. Percussion showed it as not separable from the liver area of dulness, and influenced by respiratory movements. There was no icterus, constipation, nor ascites. Exploratory operation was performed Feb. 21, 1899, by Dr. Middleton, and revealed, on exposure of the abdominal structures, a large tumor mass the size of a child's head, in the region of, and apparently originating in, the hepatic flexure of the colon, and adherent to the under surface of the liver and pyloric extremity of the stomach. The extensive adhesions precluded any possibility of removal, and the abdominal wound was closed after removing from the most prominent and accessible portion of the tumor two small pieces for microscopic examination. A histologic section revealed the picture of adenocarcinoma.

The patient, shortly after operation, returned to his home in northern Iowa, where death occurred within three months. An autopsy was not obtained.

I wish to add to the foregoing an interesting instance of early carcinoma which recently came to my notice in the practice of Dr. G. L. Day, Lone Tree, Iowa. Mrs. W., aged 27, married. Soon after the birth of her child two years ago, a nodular ulcerating growth was noted by the attending physician in the upper part of the rectum. During the last year hemorrhagic ascites prevailed, and in three different tappings sixteen liters of fluid were removed. Death occurred Nov. 21, 1899. Autopsy revealed a most extensive carcinomatosis of the peritoneal cavity, to which the metastasis was confined; the abdominal structures were all adhered and matted together into one dense mass, the infiltrated omentum having a thickness of two inches. The primary growth in the rectal wall and metastatic manifestations presented the typical macroscopic and microscopic appearance of adenocarcinoma with accompanying myxomatous degeneration.

In the list of examples of early carcinoma noted, the ages 23, 26, 27, 28, 30, 32, 34 and 35 years are represented. Four of the growths had their origin from surface epithelioma and five from glandular epithelial cells.

Of the cases recorded in literature, intestinal carcinomata have been most frequently observed, but involvement of other tissues common to cancer has been reported by trustworthy observers. Since the publication of Mathieu's classic article, in 1884, it has been more generally admitted than before that cancer of the stomach can occur before the age of 35, once regarded as the earliest possible period. Mathieu[2] himself reported, in 1895, a case of cancer of the stomach in a man 25 years of age. Dock[3] has reported two cases of the same affection occurring at 20 and 24 years of age. In a review of carcinoma developing from dermoid cysts of the ovarian region, J. G. Clark[4] cites three cases at 21, 26 and 29 years respectively. A most remarkable series of precocious cancer is reported by de la Camp,[5] including 4 cases of a carcinoma ovarii in a girl of 19 years, carcinoma ventriculi in a boy of 14, and 1 of 16 years of age, also a case of carcinoma of the colon in a boy of 16. This author at the same time made a careful search of the literature on the subject, collecting 9963 cases, and of these 19 occurred before 20 years of age. W. Roger Williams[15] collected the record of 11,934 cases, and found 0.99 per cent occurring before 30 years, and 2.36 per cent. before 35 years of age. Cumston[6] recently reported 3 cases at 19, 24 and 28 years, occurring in the liver, uterus and ascending colon. A Trayer (*Correspondenz Blatt für Schweizer Aerzte*, Oct. 15, 1899) reported the rare occurrence of carcinoma of the kidney in a man 20 years of age. Many cases are published in so casual a way that enumeration and analysis are out of the question.

Carcinoma in early life often has a slow course, and like that of later years may be latent for a considerable length of time. That cancer in early life is becoming more frequent is very evident; whether it keeps pace with the general increase in carcinoma will be difficult to determine. Certainly a collective study of the statistics reveals the unfortunate fact that the mortality rate of carcinoma is on the increase. Roswell Park[7] calls attention to the statistics of New York State, showing 2363 deaths in 1887 against 4456 in 1898. In England and Wales, where careful records are kept, the rate of occurrence of cancer has increased from 1 in 5646 population in 1840 to 1 in 1306 in the year 1896, an increase of five times in fifty years. This increase can hardly be ascribed as due to improvements in methods of diagnosis, for rather the reverse is the case, since many cases which were formerly diagnosed as cancer are now properly classified where they belong in other lists.

While the etiology of cancer remains obscure, there is but little hope that the future will offer any abatement in this progressive increase. As careful observation continues to note the occurrence of carcinoma in the earlier decades of life, there is removed from the list of predisposing causes, the influence of age.

It has been an attractive explanation to attribute to the lessened physiologic resistance in connective tissue the rôle of permitting atypical proliferation of epithelium beyond its normal limits. With advancing age the submucous, subcutaneous and interstitial connective tissues undergo atrophic changes, while the covering or lining epithelial elements seem to retain their usual vitality. When glands reach the limit of their functional rôle in the organism, the danger from carcinoma is most marked, while it diminishes again when complete atrophy has taken place. When cancer occurs thus in the developing decades of life, the above influences can hardly be considered.

Bearing on the subject of etiology I must refer again to the peculiar secondary, recurrent growth, noted in Case 1. The removal of the primary growth, with uterus and appendages, was technically as perfect as it could possibly be in any case. There was not the slightest involvement of the peritoneal cavity, and yet, shortly after the operation, there appeared in the abdominal suture wound a secondary tumor, identical in structure with the primary one. The nature of the constituent elements left no doubt as to its metastatic nature, yet if a similar instance were to occur in connection with any of the infections how readily it would be explained. While I do not pretend to advance this as any direct evidence of a parasitic cause or spread of living virus, it does seem to me to mean more than the simple transmission of active epithelial cells from primary to secondary site.

In the entire field of pathology, no subject has proven more alluring to physician and investigator than the etiology of carcinoma. It was no wonder that the development of bacteriologic methods gave a mighty impetus to the search for an etiologic agent, the result of which is well known. Numerous forms of cell inclusions—cancer bodies—have been observed and variously

interpreted. Renewed and repeated attempts have been made to find the curative agent among the protozoa which are to enter the cells and render the same infective. Such workers as Hansemann, Rippert and Schwarz have continued to oppose any such adoption, and it would seem as if that most careful and critical work of Pianese[8] has about taken the bottom out of the theory. By the use of unique staining methods and very careful technique this painstaking Italian has demonstrated, in proliferating cells, both inflammatory and neoplastic, changes and bodies which appear identical with the various forms of cell-inclusions of other observers, but which are demonstrated to be naught but evidences of different forms of cell degeneration.

An interesting contribution is that of Leyden and Schandinn,[9] who have found in the ascitic fluid of malignant neoplasms—carcinoma—a new ameba-like body of the family of rhizopoda, which appear as round bodies in the fluid, having clear and yellow granules, with ameboid movement, and pseudopods of unusual length, life and mobility being retained four to five hours after removal on to the slide. The authors do not advance any definite etiologic connection with carcinoma, yet regard their appearance as quite significant.

Italian pathologists, led by Sanfelice[10] and Roncali,[11] are still champions of the infectious theory, and their recent publications deal exclusively with certain organisms which they place among the blastomycetes, a familiar example of which is the ordinary yeast plant. They regard the organism which they have isolated from tumors in man, and successfully inoculated into animals, as largely identical with the various bodies long observed and variously interpreted as protozoa, cell inclusions, and later as cell degeneration products. Roswell Park finds the work of the Italian pathologists creditable and convincing, and it is to be expected that the New York State Laboratory, in Buffalo, whose special mission is the investigation of tumors, will soon issue some exhaustive work on the subject. If blastomycetes occur in cancers in Italy, they can probably also be demonstrated elsewhere.

As yet it is evident that the real cause of carcinoma has not been demonstrated. Perhaps it will be necessary to completely modify our culture methods. Perhaps our optical aids are inadequate in magnifying power, but unless the light comes soon, the nineteenth century will close with the genesis of cancer as much a mystery as when the century began.

Carcinoma continues to be a strictly surgical disease, and in this light I have thought it in place to refer to some of the earlier methods applicable in intra-vitam diagnosis, with special reference to the following: 1, characters of cancerous effusions in serous cavities; 2, necessity of an early microscopic examination of tumor particles, and 3, the proper interpretation of the histologic picture.

The early appearance of ascites and effusions in serous cavities involved by carcinoma, renders the fluid a good object for examination. The first scientific contribution on the subject was offered by Rieder,[12] who called especial attention to the cells found in effusions, to which subject Dock[13] has also added a most interesting article. I have endeavored to carefully examine all effusions from carcinoma cases it has been my privilege to see, and while my material has been somewhat limited, I have noted the various cell forms described by former observers, and have drawn from these studies the following points:

The specific gravity of cancerous effusions is rarely above 1015, and in that way is distinguishable from tuberculous exudates in which the specific gravity is usually higher, ranging from 1022 to 1025. Since exceptional instances of a lower specific gravity in tubercular pleurisy have been reported, this differential test must be used with a certain caution in diagnosis. The cells are by far the most characteristic feature about the effusion, the most perfect description of these having been furnished by Rieder. Cells having the appearance of lymphocytes are rare; multinuclear leucocytes are uncommon. Cells containing numerous fatty granules are frequent, the accumulation of granular material being confined principally to certain areas in the cells. Giant cells or aggregations of cells are a special feature, some of the former containing twenty to twenty-four nuclei. The most remarkable feature of the sediment is presented by the great number of karyokinetic figures, which are very numerous, presenting as common forms the equatorial plate and anaphase stages; another very characteristic point noted is the presence of atypical mitosis in the larger cells.

Atypical mitosis is an interesting study and has been demonstrated in all active proliferating pathologic processes, but with especial import in carcinoma.

In ordinary serous effusions, as in serous pleurisy and tubercular peritonitis, the large majority of cells are multinuclear leucocytes; furthemore, there are noted numerous small cells having the characters of lymphocytes, a few large mononuclear cells and some fibroblasts. The large cells with mitosis and atypical mitosis seen in cancerous effusions do not, as a rule, have their counterpart in ordinary exudates, which statement bears a slight modification, owing to the reported finding by Dock,[13] in the exudate of pleurisy, of large cells showing karyokinesis.

As a diagnostic guide, it is necessary to state that the number of cells showing mitosis and asymmetric mitosis in cancerous effusions is much greater than in those of simple or tuberculous inflammation, and by this quantitative distinction, it would be possible to make a differential diagnosis.

The large cells that have been referred to are principally of the type of endothelial ones, resembling cells seen in scrapings from serous surfaces, with the exception that the latter do not show cell-division-figures.

One can hardly hope to determine the exact histologic character of a growth occurring on a membrane, from isolated cells found in the serous effusions. If it were possible to demonstrate the Leydenia gemmipara, described by Leyden and Schandinn in cancerous ascitic fluids, an additional aid in diagnosis would be furnished.

MICROSCOPIC EXAMINATION OF TUMOR ELEMENTS.

The value and import of a knowledge of the nature of a growth, previous to surgical interference, must be apparent to every one, especially since it is becoming manifest that carcinoma may occur at almost any age. Portions of tumors can usually be obtained in a large number of cases. Surface carcinomata, both cutaneous and mucous, are accessible. Uterine scrapings are a great aid. Particles may be observed in stomach washings and in the stools and urine.

While the clinical signs in many instances may be very plain, a microscopic corroboration is always desirable. Frequently the specimens examined in this work represent superficial sections, so that certain caution is necessary in correctly interpreting the histologic picture.

Herzog[14] has called attention to a case in which three pieces were removed from a tumor of the larynx, all of which were called fibroma, while the extirpation of half

the larynx revealed the typical picture of carcinoma. The uneven white elevation seen in the larynx in carcinoma may be merely a deposit and infiltration of fibrin.

In examing uterine scrapings I have noted that while a superficial piece might reveal simply a sort of adenomatous hyperplasia, a deeper section furnished the diagnosis of carcinoma. This would apply whenever adenocarcinoma would be likely to develop, and for the differentiation, histologically, of simple adenoma and adenocarcinoma, I would suggest that the following points be noted: 1, presence of atypical adenomatous glands; 2, absorption of stroma and agglutination of the glands in loops of the same gland; 3, the proliferation of the lining epithelium of glands; 4, filling of gland spaces, rupture of lumen of gland, and proliferation of epithelial cells into the surrounding stroma.

As illustrating a mistake that may be made in connection with ulcerating processes, I would cite a case recently referred to Dr. C. M. Robertson's clinic—a man, 34 years of age, presenting a large ulcer in the region of the soft palate, of six weeks' duration. Naturally the first thought of the clinician was of its being syphilis, but infection being so strongly denied by the patient, and no signs of primary or secondary lesions being detectable, it was set aside for the time being. Examination for tubercle bacilli was negative, tuberculosis of the respiratory tract was not to be detected, and so epithelioma was determined upon, especially as the edges of the ulcer showed a marked proliferation. A small piece, one-eighth of an inch square, was removed from the proliferating edge and subjected to microscopic examination. Section revealed a downgrowth of epithelium from the surface, and two areas of epithelial cells away and separate from the surface, from which it was essential to say that the picture indicated epithelioma.

In the meantime an antisyphilitic treatment had been instituted and the ulcer began to heal rapidly, thus plainly indicating the mistake—one that, in fact, is often made in superficial examination of proliferating epithelial processes, where the direction in which a section is cut may give misleading microscopic pictures resembling epithelial proliferations into the deeper tissues, and emphasizing most strongly the obtaining of deeper sections from representative portions of the growth for diagnostic purposes.

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CONTAGION OF HERPES TONSURANS.—Several cases of herpes tonsurans were traced to the barber shop and through one customer to his dog, which had become infected by a monkey in the same house. Berger, who reports the occurrence in the *Derm. Cbl.* for April, arrested the epidemic by prompt destruction of the infected articles in the barber shop. He suggests that stricter hygienic measures be exacted of barbers, who should raise their prices to correspond, and he also warns against the fondling of household pets.

EXPERIMENTS AND OBSERVATIONS IN SCARLET FEVER.*

BY W. K. JAQUES, M.D.

CHICAGO.

Since Chicago has achieved the distinction of being a great city, scarlet fever, in forms more or less severe, has been present. During the summer and autumn of 1897, Dr. I. N. Abt found it prevalent in a light form among the poorer classes of Poles and Bohemians in certain parts of the city. The cases were so light that physicians were seldom called, and no intelligent action was taken to restrict contagion. An epidemic resulted. The health department, while realizing the danger, was crowded by more serious matters, and the afflicted communities enjoyed the blessing of becoming immunized while the disease was in its mildest form. From these localities the fever has gradually spread until it has included the entire city.

In the autumn of 1898, when the reported cases of scarlet fever were greatly increased, Dr. Wynkoop of the city laboratory, while examining a culture from a scarlet fever patient, sent him by Dr. Findley, noticed a coccus which he first took to be a form of the pus coccus. But on growing, it manifested such peculiar characteristics that he began to pursue a careful study of the germ in the laboratory. At a certain stage of its development it became a large coccus, the center of which stained in the shape of a double crescent. While this germ was still under observation by Dr. Wynkoop, Dr. Class described his diplococcus scarlatinæ, in a paper before the Chicago Medical Society. While Dr. Wynkoop used the term "crescent" and Dr. Class "diplococcus," I concluded, after a study of many cultures from scarlet fever cases, that both were different forms of the same germ. This attempt to name an organism from some particular stage of its development was responsible for the uncertainty concerning it.

This germ has a wide morphology. Sometimes one stage and then another will become accentuated, according to environment and nutrition. Sometimes conditions are favorable to its growth in chains and the culture will show the streptococcus form. In another case it will grow as a staphylococcus, and in still another as a diplococcus. Again it becomes oblong and almost a bacillus. Early bacteriologists attempted to classify micro-organisms according to shape and arrangement, and they were divided into families of streptococci, staphylococci and bacilli, etc., but in this case we have a germ that may be either or all.

Bacteriology is still too young for us to be bound too strongly by precedent. Professor Koch formulated what he considered the law to which the causative germ of a disease should conform. While this law is applicable to some diseases, many more do not fulfill all the requirements, yet experience is demonstrating that germs are the essential causes of disease in those which do not conform as well as in those which do.

As above stated, the morphology of this germ, which I have been finding in scarlet fever, is one of its most interesting features. The size of the coccus depends on its environment and the medium on which it grows. In the same culture, it will sometimes vary from the smallest point observable under a one-twelfth oil-emersion to a coccus one-third the diameter of a red corpuscle. It appears that these cocci multiply by division, and that the multiplication takes place in various sizes of the germs. When inoculated on a culture-medium, they usually grow to the favorable dividing point and then

*Read before the Society of Internal Medicine, Chicago, Feb. 27, 1900

divide rapidly so that an examination shows a field of nearly uniform size. If the culture is permitted to develop, the older germs attain a large size and show the crescent form on staining. In a culture of the germ inoculated on the Löffler serum, and incubated five to ten hours, there will be an abundant growth of large cocci sometimes arranged as staphylococci. In the same culture there are sometimes found short chains of six to twelve. This is the usual form of growth, but either the staphylococci or streptococci arrangement may predominate. This coccus when stained appears to have a small hole in it. As it enlarges, this hole is seen to be a dividing line of material which does not take the stain. This gives the coccus the appearance of a pair of crescents with their points turned toward each other. This is the last and largest stage of growth. At times the germ much resembles the staphylococcus albus, having a clean, definite cell wall. Frequently there seems to be a glue-like exudate covering the surface of the cocci. When a colony is touched with a platinum needle, this exudate can be drawn out in strings and seems to modify the surrounding medium so that it will take the stain to a greater or less degree. Sometimes the germs of the culture pass into a stage in which the germ wall seems to almost lose its definite structure, and the germ appears a refractive jelly-like mass.

I have examined from six hundred to a thousand cultures from inflamed throats each year for the past six years. During the winter of 1898 this coccus began to appear; at first only in cultures from scarlet fever patients and those who had come in contact with the disease. During the following year its frequency increased, keeping pace with the increase of scarlet fever. The infection has now become so general that fully 80 per cent. of the cultures that come to my laboratory contain this coccus.

As abundant clinical observations have proven that the contagion of scarlet fever lies in the scales, I began a careful examination of these. In twenty cases, from which I collected scales, abundant growths of this germ were obtained. Drs. Gehrmann, Wynkoop and myself conducted the following experiment: An emulsion was made from scales taken from a patient recovering from scarlet fever. A twelve weeks' old hog was injected with 10 c.c. of this. An emulsion was also made from scales given to us by Dr. Class and another hog inoculated. The animals showed but little effects from the inoculations. They were larger than we could handle well, but were the best we could secure. It required the combined efforts of two to take the temperature and, after taking it the second day, it was not taken again. The animals were watched daily, but as there was no loss of appetite or other evidence of their being affected, we concluded to try a larger injection. When we examined the animals preparatory to making another injection, twenty-one days after the first, we found they were both scaling profusely. Cultures from the scales revealed the presence of the inoculated germ.

A third animal was obtained and placed with the other two. A rise of temperature followed lasting several days, when this animal also scaled off. A piece of its skin was taken and the germ found in the blood. The children of adjoining apartment houses showed a disposition to use the barn as a play-house and it was not considered safe to continue the experiments. The isolation necessary, the difficulty in obtaining suitable animals on which to experiment, and the limited amount of time we were able to devote to observations made the results less accurate than we could wish, but they are of some value in indicating lines for future investigation. The chief difficulty in the way of acquiring definite knowledge of the scarlet fever germ is the great care necessary to conduct experiments, as well as the best laboratory facilities and, more important than all, subjects for experiment.

Clinical observation has established the fact that scarlet fever begins with inflamed fauces followed by general constitutional disturbance and characteristic rash; that these symptoms are followed by scaling of the epidermis and that in these scales lies the element of contagion.

Having found the germ present in the initial lesion, and in the scales, it was most important that the connecting link should be found in the blood. I began to examine blood by sterilizing the earlobe with alcohol and then puncturing it. In the first two cases I found the germ present by spreading this blood over the surface of a blood-serum culture-box, such as is used in the health department. Then instead of spreading the blood over the surface, I allowed it to remain as a drop on the surface and incubated the box. Several failures followed, which I attributed to the antitoxic qualities of the blood, or the fact that the germs were not present in the blood when it was taken. In one case, when the rash was just appearing, I collected blood on a sterilized swab, which was dropped into beef bouillon. In two out of three of these cases the germ was found. The taking of blood from the ear not being above criticism, on account of contamination from the skin, I determined to obtain it from venous puncture. This was done in two cases and the germ found in both. But the securing of blood in this manner is painful and not easy in private practice.

In considering the evidence as to whether or not this germ is the essential cause of scarlet fever, we should first study it under laboratory conditions and thus ascertain whether it gives evidence that it is capable of multiplying in the human body. We should then trace the germ through the body and observe its effects on the different tissues.

If the germ has shown itself very sensitive to environment in the laboratory, we should expect this also in the tissues in which it multiplies. If there is a varying degree of susceptibility in the human family, this fact must be taken into account in the study of the disease. If the germ possessed a definite virulence and always affected the human body in the same manner, its study would be a comparatively simple matter; but in scarlet fever we have a germ which is variable in its virulence, and to which there is the widest degree of susceptibility in the human family. Not only are but few individuals susceptible, but even these vary in susceptibility. The various tissues afford a different environment and present different conditions for the multiplication of the germ; also varying degrees in their resisting power, as well as different conditions for the destruction of the germ.

In tracing this infection through the body, we shall begin with the usual site of the invasion, i. e., the mouth. The human mouth, being the entrance to the respiratory passage, is continually fanned by large quantities of air. The mucus which covers the throat is a more or less nutrient medium. The glands and adenoid tissues around the air-passages are of a more or less low grade of vitality. The mucous membrane which lines this cavity is a tissue subject to inflammation. Large numbers of germs inhabit the healthy mouth; many of these become pathogenic when conditions permit. They remain as harmless saprophytes until condi-

tions of susceptibility, such as congestion from cold, deficient renal elimination or other means of lowering the vitality in the surrounding tissues, producing the results which their cycle of activity brings about. In my studies I have found that the angina produced by the scarlet fever coccus in no way differs, except in degree, from the anginas which accompany the disease. The angina produced by scarlet fever infection, however, possesses certain characteristics that do not follow the usual invasion of the pus cocci. There is an intense redness of the tissues; the throat is very sore; and there is a tendency to the involvement of the glands, and it is nearly always accompanied by high fever.

These symptoms do not end in from thirty-six to forty-eight hours, as in ordinary tonsillitis. They do not terminate in the formation of pus; but the inflammation, as before stated, has exactly the same course as that which accompanies scarlet fever. Should the invasion multiply to the extent of producing scarlet fever, there is nothing about the throat but what would be in perfect harmony with the usual angina which accompanies this disease.

When this infection invades the trachea sufficiently to produce stenosis, I have found, in the six cases that have come under my observation, that a prognosis must be given which essentially differs from that of an invasion produced by any other germs causing this condition.

In the invasion of the Klebs-Löffler bacilli, under the magical effects of antitoxin, the tube may be removed in three or four days in the majority of cases. The staphylococcus also has a short period in which the tube must remain. The streptococcus causes a more lasting inflammation, requiring the tube to be worn from six to eight days.

Stenosis of the larynx or trachea from scarlet fever causes the longer wearing of the tube than in any other infection. If the tube is removed in six, eight or ten days, the trachea seems to collapse and stenosis remains, which appears to be more from the relaxed condition of the trachea than from swollen tissues.

In each of the six patients I have intubated this winter, for scarlet fever stenosis, the tube was removed and again replaced from three to twelve times. As I have become more familiar with the nature of this infection, I allow the tube to remain for a longer period of time. Two of these intubations were in patients in whom there were well-marked manifestations of scarlet fever. The other four were in children from whom cultures showed a malignant growth of the scarlet fever coccus, but they did not have the disease; yet the same clinical symptoms followed in the trachea that appeared in the scarlet fever patients.

We have seen that we can have an extensive multiplication of this germ in the mouth, in the mucous membrane of the throat, extending into the glands of the neck and trachea, and yet not have scarlet fever. However, should the germs be enabled to pass into the blood and there find a condition for their multiplication, what symptoms would probably follow? Here it is necessary to study the conditions of environment which this tissue, the blood, presents for the multiplication of the germ. The blood is a highly nutrient medium, always at the same temperature, and may be said to represent the composite product of all the cells of the body. In addition to this, it contains the nutrient material for their support. Were this all it contained, we could readily understand that it would be a fluid which would be a most suitable medium in which pathogenic germs could multiply. For the defense of the body there are cells which circulate in the blood, one of whose functions is to destroy hostile germs. This, then, in addition to the antitoxic qualities of the blood, constitutes the defense which the body has against the invasion of pathogenic germs. The rapid circulation of the blood brings it into constant communication with every cell in the body, and in this manner they are almost instantly made aware of any addition to it. Should pathogenic germs begin an invasion in or on the surface of any of the tissues, the product of their life is at once taken into the blood current. It notifies all cells throughout the body of the invasion of a hostile enemy, and they are at once stimulated to the production of antigermin, or a defensive antitoxin.

We can thus understand that the blood is most highly antagonistic to germ invasion. At the same time, when germs invade it, their distribution to all parts of the body is but a matter of seconds. Therefore, following the enormous multiplication of the scarlet fever germ in the fauces, numbers of them enter the blood current. If this medium is sufficiently resistant, they are destroyed before any great amount of multiplication takes place. If this is not the case they multiply and are distributed to all parts of the body, and owing to the nature of the exudate which covers them, they would be likely to collect and cling in the capillaries of the tissues. They would carry with them the same irritating effects which we notice in the multiplication in the pharynx, and this would continue as long as they possessed life.

Therefore, the phenomenon which would follow the invasion of this germ in the blood would be entirely in harmony with the rash which characterizes scarlet fever. The condition of the blood in children, where the demand on it is so great for the rapidly growing tissues, and where the mucous membrane of the throat is so tender and easily invaded, indicates why they should be more susceptible than the more stable tissues of the adult.

The resemblance of this germ to the staphylococcus albus when growing under laboratory conditions, suggests the query as to whether or not it *is* the staphylococcus albus itself which, under a different environment, has adapted itself to the invasion of the blood and thus causes scarlet fever.

Evolution is much more rapid in germ life than in the higher forms, because their cycle of activity is so short. Change of environment may produce change in form and function. This we see illustrated in almost all of the pathogenic germs. The effect of residence in the human tissue may cause it to assume increased virulence and malignancy. For example: puerperal infection containing the ordinary forms of streptococci or staphylococci becomes most dangerous when carried from patient to patient. The study of these germs in the laboratory can give but a meager idea of their possibilities when growing in susceptible human soil. This may also be true of the staphylococcus albus.

The residence of germs in the human body causes them to take on qualities which can not be demonstrated by ordinary laboratory methods. In the laboratory we see, growing on moist filter paper, a fungus which, under these conditions, grows in the branching form of the fungus family and seems to be an innocent mold. Yet this same fungus was and is the bacillus tuberculosis originally taken from a patient suffering from this disease. By change of environment the bacillus was brought back to its original form of a branching fungus.[1]

[1] See Hueppe's Principles of Bacteriology.

The great variability in the poisonous qualities of the bacillus anthrax, caused by changing environment, may also be cited as one, and the fact that the cholera bacillus does not become malignant until it multiplies in the presence of decomposing filth is still another illustration of what environment will do.

Therefore, the study of the diplococcus scarlatinæ in the laboratory alone can give but a partial idea of its possibilities when introduced into the environment of the human body. Judging from the wide range in the morphology and adaptability of this germ, it does not seem impossible that it was originally the staphylococcus albus and has been modified by its human environment.

In the study of scarlet fever it is most important to appreciate the value of susceptibility in the production of the disease. I think we are justified in calling the blood the essential tissue in which the multiplication of the germ takes place to produce scarlet fever. When we consider that this fluid represents the cell production of the entire body, we can appreciate how it must vary in its resistance to germ invasion, not only from day to day but from hour to hour. Exhaustion, loss of sleep, lack of food, vitiated air or any debilitating cause which modifies the nutrient medium of the blood will affect its resistance.

After the cells throughout the body have been stimulated to the production of a resisting quality, they maintain a continued immunity. Nurses who have had scarlet fever may contract sore throats from virulent cases. Families where all the members have had the disease may also have severe anginas caused by this same germ.

The finding of this scarlet fever coccus in cultures from the throat has a different meaning from that of the Klebs-Löffler bacillus, because it is a different germ, multiplies in a different tissue and is carried in a different manner. In the case of the residence of the germ in healthy mucus, no disturbance of functions follows. When the tissues of the pharynx are invaded, similar phenomena result as in other germ invasions, but this germ in its minute form possesses the power to pass through the barrier of mucous membrane into the blood, where it multiplies, if this medium is in proper condition. The stay of the germ in the blood in patients who recover is very short, because every effort is put forth to destroy the invaders. Leucocytes are poured into the blood current and every cell is stimulated to produce antigermin. Then follows the more gradual process of absorbing the inflamed areas which may still contain the germs. While they are thus rapidly destroyed in all the internal tissues which are accessible to the blood, the skin, which is in a continual state of exfoliation, still contains the germs. During the rash period, the external layers of the skin are filled with germs; their irritative effects cut off nutrition and, as a result, those epidermis scales which are not reached by the blood during the process of recovery are filled with the minute germs. These are carried to other susceptible persons by various means, and the process repeated.

A harmless method of producing immunity by the stimulation of the cells in children exposed to scarlet fever would lessen the fear and the fatal effects of that disease as it has done in diphtheria. As soon as we have sufficient knowledge of the germ and the conditions under which it grows, this will be accomplished. Immunity against scarlet fever is enjoyed by more than 99 per cent. of individuals. Those who have suffered from the disease seldom or never have it again. Thus we see that immunity is the rule and susceptibility the exception.

In the production of immunity against disease the germ is the most important factor. In the malarial districts of the South, the negroes become immune by continually being in the presence of malaria. In this manner, or by non-fatal attacks, immunity in cholera, typhoid fever and diphtheria is produced. That immunity is conferred by an attack of the disease is already known. From the wide distribution of the germ at present, nearly all susceptible individuals must contract the disease and become immunized. In the production of artificial immunity, the problem is to bring about the cell stimulation in such a manner as not to endanger the life of the patient. In individuals who are slightly susceptible, a residence of the germ as a saprophyte probably accomplishes this, while a sore throat is necessary in those whose tissues of the throat are susceptible; and scarlet fever follows in those who are still more susceptible. In the present epidemic, those who have had an angina in which the scarlet fever germ predominated, have not had scarlet fever.

In the attempt to produce artificial immunity the nature of the germ should be kept in mind. In my laboratory experience, and from clinical observation, I should say that it is an irritating, fever-producing germ and not a toxic or toxin-producing one, the pathologic conditions being caused by the multiplication of the germs themselves and their irritating presence rather than from any toxin which they produce. In this it differs from the Klebs-Löffler bacillus, which is a toxin-producing germ and not a fever or irritating one. In this respect the scarlet fever germ resembles the typhoid bacillus. Bacteriologists say that the difficulty in getting an antitoxin for typhoid fever is because they are unable to obtain a toxin of sufficient strength to stimulate the cells of the animal to produce an antitoxin. This same difficulty will stand in the way of producing an immunizing serum for scarlet fever.

However, another way of causing protection suggests itself to me. In scarlet fever, the site of the invasion usually includes the entire mucous membrane of the pharynx, and from this extensive surface the germs are enabled to enter the blood in overwhelming numbers. Surgeons have often noticed that wounds in other members of a family, where there is a case of scarlet fever, become inflamed and are often slow to heal, but the disease does not follow. On the other hand, the introduction of scarlet fever germs into the vagina of a recently delivered woman is extremely fatal. Therefore, the ease with which the infection enters the blood is a most important factor. In wounds there is a barrier of swollen capillaries gorged with leucocytes which stand between the germs and the blood. In a puerperal case, and also in the throat, there is an open door almost directly into the blood.

Being aware that experiments in inoculation have been disastrous, I had to be careful in this work. My first experience was the inoculating of the puncture after giving diphtheria antitoxin. A little girl was scaling from scarlet fever when her mother contracted diphtheria. The circumstances of the family were such that isolation of the younger brother could no longer be maintained, and I immunized the two children. With the consent of the father I inoculated the site of the puncture in the boy with scales from the sister. A slight rash followed, beginning at the site of the puncture and spreading over the body. The scaling was very much less than in the sister.

The child of a physician became slightly burned. The father had attended scarlet fever patients during the winter. The wound became inflamed and a rash followed with a rise of temperature to 101 F. No throat symptoms were present in either this or the previous patient. I think it rather hazardous to inoculate the germ directly into the blood current, and it seemed to me that the infection in the case of the burn was the mildest.

It is my purpose to experiment with the following method whenever an opportunity presents itself: Raise a small bleb by means of a fly-blister; with a hypodermic needle inoculate the serum without breaking the blister, if possible. If the patient is susceptible, the germs ought to multiply in this serum, and before passing into the blood, they would have to get through the barrier of inflamed capillaries filled with leucocytes. In this manner their entrance would be slow and the blood could gradually take up the products of germ multiplication in the serum, while the cells would be stimulated to the production of a defensive antigermin.

I have purposely avoided the conflicting literature on scarlet fever. Two things are necessary in a contagious disease, i. e., the germ and a susceptible person. From my standpoint it is impossible to produce the disease under laboratory conditions, as the multiplication of the infection requires not only a living blood environment but this must have, in addition, a peculiar quality which permits the production of the disease. Therefore, the bacteriologist in his laboratory can get at but a small portion of the evidence. A chain is only as strong as its weakest link, and the links of evidence in this chain must not be separated. The microscope must be taken to the living environment and the germ studied under the conditions in which the disease is produced.

No doubt further study and experiment may cause me to change some of these views, but at the present time they are the most reasonable explanations of the clinical phenomena in scarlet fever. If the criticism they provoke prove them false, the discussion may lead to the truth and compensate for the preparation of this paper.

4316 Greenwood Ave.

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DISCUSSION.

DR. ADOLPH GEHRMANN said that he does not believe, from the examinations, that he has been able to make out that this coccus, from its microscopic appearance, is sufficiently characteristic to say that it is always the Class coccus. His observations have shown that a bacterium, giving the same appearance, and in a great many cases more cultural characteristics, has been found in other conditions, especially on the skin of individuals who have not been in contact with scarlet fever patients, and in some rather unusual places. For instance, he has found a coccus giving the general characteristics of the Class coccus, in vaccin material a number of times. He has found it in samples of urine and in other specimens in conducting general examinations. Dr. Gehrmann gave his reasons, at considerable length, why he does not think the Class coccus is the only and sole cause of scarlet fever.

DR. WILLIAM J. CLASS called the attention of the Society to the published work he had done with reference to the germ of scarlet fever.

DR. LUDVIG HEKTOEN said that it has been held theoretically that scarlet fever is not a toxic disease, but its lesions are those of a toxic one. In the organs of patients dead from scarlet fever, the same necrosis and degenerative changes are found in the lymphatic glands, spleen, bone-marrow, liver, etc., as are found in such diseases as diphtheria, etc., of the toxic nature of which there can be no question. Investigations with reference to the etiology of scarlet fever must go further than a mere investigation of the morphology of a coccus.

DR. L. MAYWIT narrated two cases of scarlatinal sore throat that he saw in a family. Cultures were made and the Class diplococcus was found. In one case the temperature varied from 103 to 104 F., and in the other from 102 to 103 F., and this elevation of temperature lasted four or five days in each patient. Repeated examinations of the urine were made and albumin was found daily for six or seven days, after which it disappeared. The children had no albuminuria before the onset of the fever, and none after, so he thinks the albumin must have been caused by the scarlet fever germ. The eruption was not marked in either case. Both children recovered.

DR. W. K. JACQUES, in closing the discussion, said that he has found the diplococcus of Class present in great numbers in the throat, the blood, and in the scales of scarlet fever patients. Indeed, he has found this germ as frequently in cases of scarlet fever as is the Klebs-Löffler bacillus found in diphtheria.

DISTILLED WATER AS FOOD.*

BY EPHRAIM CUTTER, M.D., LL.D.
NEW YORK CITY.

Food is any substance received into the human system from without, which normally becomes a biologic part of the system and is needful to life. It includes minerals, as air, water, salt, etc. Aerated distilled is also meant here, and not the ordinary chemical laboratory distilled water, condensed in a closed reservoir. The distillate should have a fall of not less than two inches in open air for aeration, otherwise it may be an abomination of the meanest taste.

HOW TO HAVE IT.

Philadelphia is the great medical center, and yet my patients have been unable to buy anything but laboratory-distilled water. So the best way is to make it. The writer tried to get all the domestic water stills in the market to report on, but was unsuccessful. As he is writing this paper interprofessionally and clinically, he asks to testify simply to what he knows and let the still-makers arrange for their own testimonials. While many stills are in the market, they are too expensive for the average person and too complicated. Between the lines their advertisements read as if they were made for making money, not water. The merchants give an idea that distilling water is an exceptional and difficult thing, obtainable only through their wares, each being the best and all others poor, if not worthless.

A few moments of reflection shows that aerated, distilled water is most abundantly present in the open air, as rain, clouds, dew, fog, mist, invisible vapor; also in solid state, as frost, hail and snow. From all surfaces of water—fresh or salt—or of substances wet in water, water is by nature's evaporation distilled. From the ocean distilled water rises in the air, is held in solution, carried by the winds inland to the mountains and hills, where it is condensed by cold into rain, clouds, etc., and is swallowed up by the earth, or falls in the forests, slowly forming springs, pools, fairy rills, brooks and rivers, whence it runs back to the ocean or inland lakes, to be distilled again. This process has gone on so long that all collections of outletless waters become loaded with the salts and other minerals, as would be expected in the residuum of distilled water, simply because salts and minerals are not volatile like water, which rises as steam even at temperatures below zero (F.). (See works on steam.) Thus the ocean and the Dead Sea have become salt. This natural distillation has existed for ages, on a most tremendous scale, and will continue as long as God wills. It is difficult to see how anybody can monopolize water stills, they are so universal.

The principles of distilled water production, artifi-

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cial, are: Evaporation and condensation in a reservoir. The former is had by heat, the latter by surrounding the reservoir with cold water or cold air.

I remember seeing, when a boy, almost a stream of clean, pure, glistening water fall from the under surface of the cover of my mother's wash boiler, when she removed it to gratify my boyish interest in its seething contents. I think a few drops fell on me, and I found out it was hot water. I wondered where it came from, for I saw there was no contact with the boiling suds, and it was clear water. It was a problem to me then, and I think my boy mind must have solved it at that time, as distilled water condensed by the contact of air which,

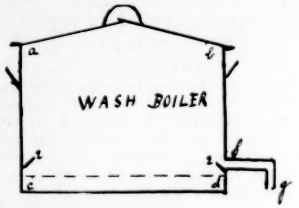

Fig. 1.—Vertical section of wash-boiler still, a, b, c, d; e e, one-inch flange; f, opening; g, tube.

rising as fast as it was heated, was replaced by cooler air, condensing the steam. Every time I saw a wash boiler at work I verified this observation. This principle of making distilled water became a fixed one with me, but it lay dormant and was not utilized for about forty years, when a patient of mine was going to Idaho to teach school and I did not want her to drink the alkali water. I told her to have a common wash boiler soldered all around inside, four inches from the bottom, with a strip of tin one inch wide, at an angle of 45 degrees. At one

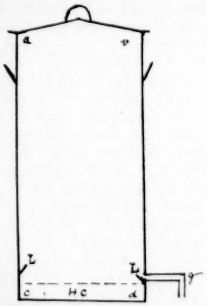

Fig. 2.—Vertical tank still; ab, 12 inches; ac, 28 inches; CL, 4½ inches; LL, 1-inch ledge.

end of the boiler this ledge was to be left a little lower for drainage. The tinsmith was to put in a one-half-inch tube running outside for four inches, to drain into a receptacle, at least two inches lower for aeration. The other details were so simple that she had sweet water instead of bitter. The principle of this still is clearly manifest: The steam, condensed by cooler air in the boiler walls, ran down in tiny drops to the ledge and thence into the receptacle. In London, 1889, a like still was made for Sir W. A. Mackinnon, the highest medical official of the British army, who approved of the principle and said he wished he could have had one in India. I have published illustrations of this still several times.

The still made in London had not surface enough; it got too hot, so it would not condense.

When Fig. 3 was run on the cover over the fire box of our kitchen range it condensed 10 ounces an hour or 2 gallons daily, more than enough for one patient; but placed over the cover next the first named, it distilled just the same amount with the advantage of being out of the cook's way. Increase the height and the product is increased, and perhaps in a greater proportion, as the higher the still the farther away from the fire. This can be done by adding a bottomless still of the same size and placing the cover on top as before. Fig. 3 was made, with a copper bottom, of common tin, for $4.25, by a plumber.

Suggested forms of this still.—Have a closed, clean tin or galvanized-iron stove or furnace pipe 10 to 25 feet long set upright out of doors, close to the house. Have a small air hole at the top, also an exit tube at the closed bottom next to it for delivery and aeration of the distillate to the receptacle. Connect the steam through an opening four inches from the bottom, from a common tea-kettle or other source. Or run the tea-kettle or other steam into a common wash boiler, through an opening in the cover which has a drip tube.

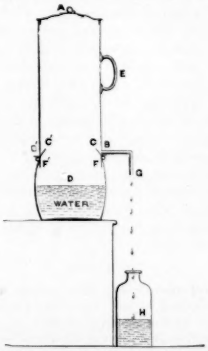

Fig. 3.—Water still as used by E. C. Air the condensor. Height, 2 ft. 6 in. A, handle to cover; E, side handle; C C, 1-inch flange; B G, distillate tube; H, receiver.

If steam is easily had, it can be run into a rejected water back-tank—which plumbers are glad to throw away—set vertically outside. These examples are enough to demonstrate the principles of air-condensing water stills which, for their simplicity, cheapness and usefulness should be as free as air, and should be found on shipboard and all places where pure water can not be obtained. The product from sea water, obtained from Fig. 2, is palatable, pure and delicious.

The difficulty with rain water is that there are so many forms, organic and inorganic in the air—morphology—that the taste is impaired. If the rain is filtered, as in mountain springs away from man and beast, the result is delicious and curative as patients testify to the curative effects of pure spring water.

DIETETIC PRINCIPLES OF AERATED DISTILLED WATER.

Negative.—It is not a poison or I would have been dead long ago, as I have for years used all the distilled water I could get. Its osmosis is harmless. A German physician, Dr. Koppe, claims that the turning white of

the epithelia of the alimentary canal by distilled water shows it to be poisonous. There is some truth as to the color, as seen on washer-women's hands turning white in the suds, from long immersion, but I never knew of one being poisoned. I wonder how our German secured his information. For about twenty-five years I have studied the morphology of hydrant, well and ice waters. Rarely, if ever, have I found epithelia absent. Many are so common and well preserved that their presence has become a matter of fact, taken for granted as daylight. Epithelia have a wonderful vitality soaked in water and have no washer-woman's white color. I wish our learned German friends would see if we are right in saying that probably epithelia loaded with diphtheritic or scarlet fever vegetations in hydrant water may communicate these diseases, also as cholera, smallpox, typhoid fever, etc. My patients have freely used distilled water and none were poisoned, in fact have recovered from so-called incurable diseases. Allowing the dictum aforesaid, Nature reproduces epithelia so rapidly as to meet the need, wet or dry, but this is nominal metabolism.

Positive.—Distilled water cleanses the tins that contain or condense it, brightly. This might show that hydric acid =HO= distilled water, is more active than undistilled to dissolve salts and metals—that is to say, having no salts in solution is a great clinical advantage as distilled water will more readily dissolve out granular, crystalline and massive gravels that accumulate: 1, in the blood in rheumatism or gout; 2, in the lungs in asthma, fibroid consumption and chronic bronchitis, colds and coughs; 3, in the kidneys, intestines, liver, vagina, mouth, blood-vessels—arteries; 4, in and on the skin; 5, on the teeth as tartar—in fact all the calculous diseases, no matter what the location.

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ROLE OF CALCULI, INCLUDING ALL GRAVELS.

They are formed normally in the body systemic in the performance of its functions. Normally they are saline bodies held in solution, and are dispensed with after use by the skin, urine, feces. This is said advisedly from many years of observation by others and myself. If from any reason calculi are deposited from their solutions in the blood, urine, feces or the skin—whose sweat, tasting of salt, is one proof of these salts—then the respiratory tract vicariously attempts to eliminate these calculi from the system and so irritates the air-passages and causes coughs and colds—as one of Nature's ways to get rid of the calculi as intruders on the peace of the kingdom of the body systemic.

If the lungs and nares do not succeed in the removal, the over-worked kidneys, intestines and skin take a hand and do the best they can, and yet we call these lung, nephritic, intestinal and dermal efforts—diseases—when they are nothing but Nature's efforts to save the health and life of the body systemic. Now the most common sense thing to do in helping Nature to cure these so-called diseases is to wash out the calculi with water, God's great gift to man. It stands to reason that distilled water, having no saline bodies in solution, will dissolve out more gravel than ordinary well or hydrant waters, even if filtered.

A few years ago, Dr. R. H. Sayre, of New York City, returned from Paris saying the French told him this doctrine, and he informed them he had heard it in America.

SOME PRACTICAL EVIDENCE.

A few years ago a veteran captain, War of 1861, had the signs of fatty degeneration of the kidneys, voiding calculi. The Geneva Spring water was his drink. A large uric acid calculus brought him $5.00 from the water company and was referred to in advertisements as positive evidence of the marvelous removal of stone by this water. But the man grew worse and went to Dr. J. A. Cutter's hands, who, finding there were some 232 grains of solids to the gallon of the Geneva water, correctly inferred that the water kept the calculi forming in a system which before was saturated with salts. Captain C. was put on distilled water for drink and chopped meat diet. His health was restored and now no calculi are voided. I deem distilled water far better than lithia waters, on the ground of cures and the uselessness of adding more salts when the system is so saturated as to deposit granular, crystalline and massive gravels or calculi inside the viscera and tissues.

CASE TO SHOW THE DIFFERENCE BETWEEN COCHITUATE WATER AND DISTILLED OR SPRING WATER WITH LESS THAN TEN GRAINS TO THE GALLON.

Professor M., of Boston, an old patient of 1876, in the pretubercular state, about 1894 had a severe and harassing cough which, under the circumstances, caused apprehensions of the return of tuberculosis. But the morphology of the blood was not tuberculous nor pretuberculous. The sputum showed gravel—granular, free and encysted—in giant mucous corpuscles distended by the gravel, also crystalline and massive—i. e., like broken glass—and pigment matters. He was, as to drink, treated with spring—as above—and distilled water. Fourteen days later the gravel had mostly disappeared from the sputum and with it the cough.

These opinions are based on a study of the morphology of hydrant and well waters for twenty-five years. My conclusions are that water by itself or inhaled in the air passively and constantly is a food, indispensable to all mankind; that, if so, why feed "calculi" patients on waters which add to the already overloaded collections? that distilled water properly aerated is the best for such rheumatics and asthmatics; that if Germans have been poisoned by distilled water, it is a very remarkable idiosyncrasy in those who have figuratively more vitality, more strength and actually enjoy more rights than Americans; German patent medicines are used by American physicians largely, beneficially, undisturbedly, while cis-Atlantic patent medicines and appliances can not be employed by American physicians; that water is a solvent in biology; that the purer it is, the better will water wash out the viscera, dissolve calculi, ease the flow of blood through the more than 100,000 miles of capillaries in the system, promote osmosis, soften tissues, accelerate secretions and excretions, equalize all circulations, aid cerebration, cardiation, digestion, metabolism; that distilled water is free from bacteria, yeasts, epithelia loaded or not with cryptogamic diseases; that whatever gets in from the morphology of the air of the kitchen can not be so deleterious as some aver, because the culinary queens inhale it all the time, harmlessly.

The writer hopes it will become the fashion to "treat" people with distilled in place of undistilled water and spiritous liquors, as he found it appetizing, satisfying, going to the right spot, clean tasting and beautiful to the eye as well as the palate, wholesome and never intoxicating (toxa=poison) as our experience proves with the Americans and English, though Dr. Koppe asserts it has. I respect him but do not accept what he says, as it does not tally with the facts here given.

CHRONIC CONSTIPATION A SYMPTOM RESULTING FROM A DISORDERED STATE OF THE SYMPATHETIC NERVOUS SYSTEM. ITS CAUSES AND CURE.

BY CHARLES E. STEWART, M.D.
BATTLE CREEK, MICH.

Chronic constipation, although commonly considered a disease *per se*, is in reality only a symptom indicating the presence of some more general disorder. This symptom, if such we may be permitted to term it, is one which accompanies a great many disorders, being most frequently met with in persons having some other digestive disturbance. Whenever encountered, it is an indication of some inhibitory power acting through the motor, vasomotor, secretory, or sensory mechanisms of the alimentary canal. These mechanisms, being involuntary in nature, are under the control of the sympathetic nervous system; consequently the primary cause of the constipation must be sought for in some inhibitory influence acting on any or all of the mechanisms referred to.

A brief survey of the anatomy and physiology of the sympathetic system will make clear the anatomic relationship existing between the cerebrospinal and the sympathetic system, and also their control over the functional activities of the alimentary canal.

The sympathetic system, although not wholly removed from the influence of the cerebrospinal, as will be seen later, has to a certain degree an independent action of its own, by means of which it controls nutrition and visceral rhythm. The sympathetic system consists essentially of: 1, a series of small ganglia located on the posterior roots of the spinal nerves close to their emergence from the cord; 2, a series of ganglia located on either side of the vertebral column, extending from the base of the skull to the coccyx, these being joined together by means of nerve-fibers, at the top by the ganglion of Ribes, and at the bottom by the ganglion impar, thus making a continuous chain of ganglia, commonly known as the gangliated cord, or vertebral ganglia; 3, three large gangliated plexuses located in the thorax, abdomen, and pelvis, known respectively as the aortic, abdominal and pelvic plexuses, or prevertebral ganglia; 4, an innumerable number of smaller ganglia located in relation with the various viscera and blood and lymph vessels, known as the terminal, automatic, or visceral ganglia, and 5, a large number of nerve-fibers. These are of two kinds, communicating and distributory. The former connect the ganglia with each other and with the cerebrospinal nerves; the latter connect the prevertebral ganglia with the automatic ganglia located in the viscera and circulatory system. The spinal nerves are connected with the vertebral ganglia by means of the white rami communicantes, which pass out from the anterior roots of the spinal nerves, some fibers passing to the vertebral, others directly to the prevertebral without communicating with the vertebral ganglia. There are also gray rami, consisting of non-medullated nerve-fibers, passing back from the vertebral ganglia to join the main nerve trunk of the spinal nerve, part of the fibers passing back to the cord as vasomotor fibers to supply the vessels of the cord and its coverings, the remainder passing with the main trunk of the nerve to supply the blood-vessels of the periphery.

The white rami are composed of visceral and vascular fibers, which are medullated. The gray rami contain fibers which are non-medullated, and are vasomotor in their function. The white rami are of special importance in connection with the question under consideration, in that they influence the functional activities of the alimentary canal. Certain of these medullated fibers of the white rami pass from the cord between the second dorsal and the second lumbar nerve, to supply the viscera and blood-vessels, which, according to Gaskell's nomenclature, are called splanchnics. These have been divided into three sets, according to location: 1, thoracic; 2, abdominal; 3, pelvic. The abdominal splanchnics consist of three main nerves, or trunks, designated the greater, lesser, and smaller splanchnics. The first is formed by branches from the sixth to the tenth thoracic ganglia. It pierces the crus of the diaphragm, and joins the solar plexus. The second or lesser splanchnic is formed by branches from the tenth to the eleventh ganglion. It pierces the diaphragm and joins the solar plexus. The third or smallest splanchnic arises from the last ganglion, pierces the diaphragm, and terminates in the solar plexus. These three nerves frequently communicate with one another, and all end in the aggregation of sympathetic nerve substance located posteriorly to the stomach and surrounding the celiac axis.

From this, the greatest of the sympathetic nerve-centers, fibers are distributed to all parts of the abdominal viscera. Its functions are to control the secretory, vasomotor, nutritional, and visceral ganglionic activities. The secretory functions of the intestinal glands are directly under the control of Meissner's plexuses, which are located in the submucous coat of the intestine, and are influenced by the solar plexus.

The vasomotor functions are controlled by means of fibers reaching the blood-vessels through the splanchnics, the greater splanchnic being the largest vasomotor nerve of the body. The nutritional and visceral ganglionic activities of the intestine, while under direct control of the visceral or automatic ganglia, are predominated over by the solar plexus. The independence of action possessed by the visceral ganglia is observed in the rhythmic peristalsis which occurs in the intestine when removed from the body. This is well illustrated in the intestine of the dog.

Auerbach's plexuses, between the longitudinal and circular coats of the intestine, extending from the esophagus to the rectum, are automatic motor centers, and it is through the influence of these that it is possible for peristalsis to take place in the intestine after removal from the body When these centers are uninfluenced by any stimulus, there is a condition of aperistalsis.

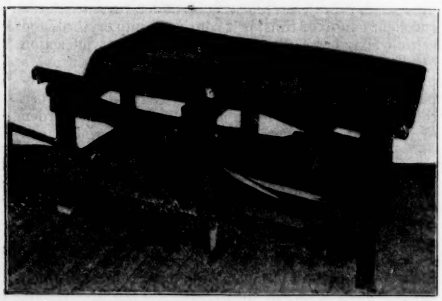
While the automatic motor ganglia are found in both the large and small bowel, there is considerable difference in the rapidity of the peristaltic wave in each. The nerves influencing the small intestine cause rapid peristaltic movements, while those controlling the large bowel and rectum cause slow movements. This difference in activity between the large and the small bowel is undoubtedly due to the difference in innervation; the small bowel is influenced by fibers from the solar plexus, while the inferior mesenteric ganglion of the sympathetic system influences part of the transverse and the descending portion of the colon, the sigmoid flexure, and the rectum. It is a well-known fact that the peristaltic action of the alimentary canal is largely under the influence of the blood-supply, the latter in turn being controlled by the vasomotor nerves.

The relative amounts of oxygen and carbonic acid gas contained in the blood determine to a considerable degree the rapidity with which peristalsis takes place. The greater the amount of oxygen present in the blood, the

less the peristaltic movement; and the greater the quantity of carbonic acid gas present, the greater the peristaltic action. In the absence of other stimuli, and when blood containing a normal amount of blood-gases passes through the intestinal blood-vessels, the usual normal peristaltic movements occur.

The abdominal splanchnics, which contain inhibitory, motor, vasomotor and sensory nerve-fibers, when stimulated, materially alter the peristaltic movements of the small intestine. When the blood-supply of the intestine is normal, stimulation of the splanchnic inhibits peristalsis; when there is an increased amount of blood in the intestinal vessels, stimulation augments peristalsis. The opposite is true when there is an increased amount of arterial blood circulating through the intestinal vessels. The inhibitory fibers are easily exhausted by an increased amount of venous blood. The stimulation of the splanchnics after death always causes peristalsis, which is in all probability due to the fact that there are motor fibers present which remain excitable for a longer time than the inhibitory fibers. The vasomotor function of the splanchnic is observed by the constriction of the blood-vessels which takes place when it is stimulated. When the nerve is severed, there is dilatation of the intestinal vessels. The sensory function of these nerves is observed in the painful conditions arising in certain disorders of the abdominal viscera.

While the functions of the alimentary canal are almost entirely under control of the sympathetic system, the cerebrospinal system has a modifying influence through the action of the vagus on the stomach and the upper portion of the small intestine, and the action of the sacral nerves on the sigmoid flexure and rectum.



KNEADING MACHINE.

In certain diseases of the central nervous system, obstinate constipation results from a disordered state of the reflex mechanism governing the sigmoid flexure and rectum. As a result of this condition, the large bowel is unable to unload itself, while the small intestine keeps forcing its contents onward, thereby overloading the fecal reservoir, and producing obstinate constipation.

Constipation, then, may be considered a symptom characterized by prolonged retention of feces in the alimentary canal, caused primarily by inhibitory influences acting on the motor, vasomotor, secretory, and sensory mechanisms of the alimentary canal. As these mechanisms are chiefly controlled by the sympathetic system, constipation might properly be termed a neurosis of this system.

The etiologic factors in the production of the disorders which give rise to the symptom constipation are many, and, as previously indicated, are those which exercise an inhibitory influence on the motor, vasomotor, secretory, and sensory mechanisms of the canal. The motor mechanism may be disturbed either generally or locally; generally, by anything causing an atonic condition of the muscular or glandular activities of the canal, as cancer, diabetes, chlorosis, anemia, etc.; locally, by strictures, sacculæ, tumors, gravid uterus, enlarged prostate, or anything which locally interferes with peristalsis. Localized pain from hemorrhoids, fissures, tumors, etc., is also an etiologic factor in the production of constipation. This is undoubtedly caused by the individual shrinking from evacuating the bowels because of the accompanying pain. This failure to evacuate soon interferes with the visceral rhythm, which, together with the retained fecal matter distending the canal, soon renders the musculature inactive. Although capable of acting independently, the vasomotor and secretory mechanisms in the main act in unison. This is due to the close relationship existing between the two mechanisms, each being more or less dependent on the other.

Since the amount and character of the secretion depends largely on the amount and character of the blood, a condition of intestinal anemia means an absence of intestinal secretion, which has a tendency to produce intestinal constipation. In these disorders in which there is a diminished amount of secretion, as fevers, and diabetes, constipation is a common symptom. In persons whose occupation keeps the perspiratory glands overactive, constipation is of common occurrence. Failure to respond promptly to the demands of nature in this respect interferes with visceral rhythm and soon results in a constipated condition of the bowels.

Constipation is more common in females than in males, due in part to the more sedentary and indoor occupation of the former, and in part to woman's manner of dress, which limits the action of the intestine, and is also a causative factor in the production of enteroptosis. Chronic constipation is a symptom in active and chronic disorders of the brain and cord, as meningitis and myelitis, and is also observed in tetanus. Diet undoubtedly plays an important rôle in the production as well as the relief of this symptom. It is a well-established fact that dyspepsia, with its long train of varying symptoms, of which constipation is a frequent one, has improper food for its origin in the majority of cases.

Drugs, which are almost universally used for the relief of constipation, are certainly one of the chief causes of chronic constipation; but their use usually relieves the symptom by producing another of an opposite character, and one just as disagreeable to the patient. Instead of removing or curing the causative factors, purgatives, by their stimulation of the motor and secretory mechanisms, temporarily increase the sluggish peristalsis, thereby giving temporary relief. After the effect of the drugs has been expended, the original state of sluggishness, but to a greater degree, is usually reached, requiring a more powerful purgative to produce evacuation. This drugging process is frequently kept up until both the patient and the physician nearly exhaust themselves in trying to effect a cure.

Sometimes it is difficult to decide whether or not a person is suffering from constipation, because of the fact that what may be a normal number of evacuations for one person is inadequate for another. However, in a very large percentage of cases, one normal evacuation in twenty-four hours is considered sufficient, while two

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evacuations in this period, or one in forty-eight hours, may be considered normal for a smaller percentage. In some one movement per week seems to be sufficient. Besides the retention of fecal matter, there is generally a sense of fulness, lassitude, mental depression, or headache; the tongue is usually coated; the breath may or may not be foul. These conditions are usually relieved as soon as a free evacuation is obtained, but will return again if fecal matter again accumulates. If the bowels remain constipated for a considerable length of time, symptoms of autointoxication are likely to appear. Under such conditions there is likely to be great depression, loss of appetite, sick headache, and even melancholia.

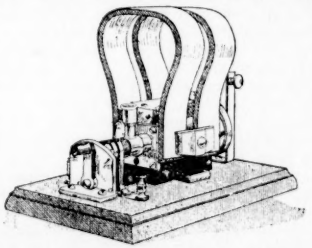
The diagnosis is usually easily made, the patient referring to this particular symptom along with a list of others common to digestive or other disorders. In some cases the diagnosis is not so readily made, and careful physical examination is required before the true condition of affairs can be learned. Diarrhea sometimes accompanies some of the worst cases of fecal impaction, due to the hardened fecal material producing severe irritation, which excites peristalsis, resulting in frequent expulsion of part of the bowel contents.

The prognosis of chronic constipation is favorable unless there is some change in the canal which is not readily remedied. The prognosis is usually favorable, being most so for those patients who can obtain treatment in a thoroughly equipped and scientifically conducted medical institution. While there is perhaps no other symptom so readily relieved by the use of drugs, it is a fact that the fewer drugs used in its treatment the better, for in the vast majority of cases their use is an irrational procedure. It is true that drugs usually promptly relieve the symptom and the patient is satisfied for the time being, but sooner or later the difficulty will return with renewed vigor, and a stronger purgative will then be needed to effect an evacuation. The remedies which once gave such prompt relief have not only failed to effect a cure, but, on the other hand, have been the means of contributing to the causative factors already at work in the production of this symptom.

Constipation, like any other symptom of a general disorder, must of necessity be relieved by directing the remedial agents at hand toward the removal of the cause. The methods of treatment which have been found to be most satisfactory in the cure of chronic constipation are unfortunately such that many of them can not be employed by the general practitioners so as to give the most satisfactory results. Many of these patients require the combined effects of a most carefully regulated diet, hydriatic and electric applications, mechanical and manual Swedish movements, and carefully regulated exercises.

In the treatment of chronic constipation the question of diet is of paramount importance. It is through this channel that the foundation of most digestive disorders is laid. Dyspepsia, so universal in America that it is sometimes termed "the American Disease," is largely caused by dietetic errors, the principal one being undercooked and imperfectly disintegrated starchy foods, giving rise to amylaceous dyspepsia. Fermentation from this cause results in the production of poisonous substances, these in turn giving rise to autointoxications. These poisonous substances circulating in the blood have a deleterious influence on the delicate structures of the nervous system, which react in various ways, giving expression to the almost innumerable symptoms common to the different forms of digestive disturbance. The use of condiments and highly seasoned foods has a powerful influence in causing inactivity of the bowels.

The writer is of the opinion that the diet is one of the first factors to be considered in the establishment of a cure for chronic constipation. The patient should be instructed to adopt as nearly as possible an aseptic dietary. This should consist of foods containing the proper amount of carbohydrate, nitrogenous, and fatty food substances required to nourish the body properly. The carbohydrate foods, which make up the largest share of our food, should be taken in the most easily digested and assimilable form obtainable. Foods containing a very large percentage of starch should be thoroughly cooked. Ordinary cooking by means of boiling is not sufficient, for the raw starch by this process is simply changed to amylodextrin, or soluble starch. The soluble starch, however, can be further digested by means of



dry heat. When starch is subjected to a very high degree of dry heat, or moist heat under pressure for a sufficient length of time, it is converted into erythro- and achro-odextrin. The latter, when subjected to the action of the saliva, is converted by the ptyalin into maltose, a product capable of immediate absorption. Food prepared in this manner is so readily digested and absorbed that it relieves the stomach and intestine of the burden of retaining a large amount of starchy material which, under the favorable conditions frequently met with in disorders of digestion, is so prone to undergo putrefactive changes. By the use of such thoroughly cooked starchy foods these fermentative changes are lessened, or entirely checked. The question of nitrogenous and fatty food substances is also an important one. The animal kingdom is relied on to a large extent to furnish these two important elements. The readiness with which animal foods undergo putrefactive changes renders them questionable, especially for those cases in which fermentative changes readily take place. The nitrogenous and fatty material, which can readily be obtained in sufficient quantities and proper proportions from grains, including the legumes, and edible nuts, does not have the tendency to decompose that the same foods from the animal kingdom do. Besides possessing this important qualification, grains are also a very wholesome and economic source of food-supply. When one buys a pound of zwieback or rice, he is not paying for 70 or 80 per cent. of water, as he does when he buys a pound of beefsteak. On the contrary, he is getting more than 80 per cent. of food; he is also obtaining his food direct from nature's garden, and not allowing it to be utilized by some other animal no more capable of storing up energy from it than himself. The use of such pure foods, properly cooked, can not have other than a normal influence on the digestive tract.

Another source of food-supply which might be drawn upon more extensively to good advantage is fruits. In these the quantity of nourishment is not great, but what is present is readily digested and assimilated. Nature does in the fruit, during the ripening process, what art does in the cooking of starch by dry heat, i. e., she converts the starch into sugar. Besides the sugar—and a greater or smaller amount of nitrogenous and fatty food substances—which varies according to the variety, fruit contains succulent juices which promote an abundant flow of the digestive fluids, and furnish the body with a considerable amount of pure water and salts, both of which are essential to proper metabolism. Most fruit juices also have an inhibitory action on germ growth. From the three sources of food mentioned, viz.: fruits, grains, and nuts, an ideal dietary can be selected for both the sick and the well. It was the original diet of man, as outlined in Genesis, and a dietary that will make a sick man well and keep him well. George Cheyene, in his essay on "Health and Long Life," written in 1725, says, "Animal food and strong liquors seem not to have been designed for man in his original make and frame, but rather indulged, to shorten the antediluvian length of life, in order to prevent the excessive growth of wickedness."

In selecting a dietary for a patient troubled with chronic constipation, such dry foods as zwieback, browned rice, etc., are found to be palatable, easy of digestion, and at the same time to present bulk enough to excite gentle peristaltic movements. Nuts, in order to be of service, should go through a special process of preparation. At the present time such specially prepared nut foods as protose, nuttolene, malted nuts, granuts, bromose, and a number of others, can be found on the market. A careful analysis of these nut foods has been made in our laboratory, and they have been found to be sterile and wholesome, and to contain nitrogenous and fatty material in proper proportions to meet the demands of the human economy. A diet consisting of granose, browned rice, protose, steamed figs, prune marmalade, and ripe fresh fruits such as apples, strawberries, oranges, etc., almond butter, and cream, is so palatable, nourishing, and easy of digestion that the most fastidious epicure could find no fault with it.

The patient should be instructed to use no liquid with his meals, other than that which is contained in the food. A glass of cold water half an hour before each meal, and as much hot or cold water as is desired 2½ to three hours after each meal, will prove beneficial. He should also be instructed to eat the dry food at the beginning of the meal. The dryness of the food will necessitate thorough mastication and insalivation, resulting in the thorough digestion of the starch.

After arranging a proper dietary and giving the patient explicit directions concerning it, treatment should be instituted at once to relieve him of the accumulated mass of fecal material. This can usually be done by means of cleansing enemas of warm water, using from one to two quarts at a temperature of 100 to 102 F.; if this fails, two ounces of olive or sweet oil followed by a strong solution of soap-suds, one to four pints, at a temperature of 100 to 102 F. The cleansing enemas should be employed for three successive days, and should be followed by the graduated enema, which is given as follows: The first day after the last cleansing enema use seventy-two ounces of water at a temperature of 102 F.; the second day, 64 ounces at 98 F.; the third day, 56 ounces at 92 F.; the fourth day, 48 ounces at 88 F.; the fifth day, 40 ounces at 84 F.; the sixth day, 32 ounces at 78 F.; the seventh day, 24 ounces at 74 F.; the eighth day, 16 ounces at 70 F.; the ninth day, 8 ounces at 64 F.

The effect of this treatment is to keep the lower bowel from becoming obstructed, and at the same time to give tone to the walls of the bowel by gradually reducing the temperature and the amount of water used. The impressions thus made on the mucous membrane of the bowel reflexly excite the splanchnics, which in turn, through Auerbach's and Meissner's plexuses, excite normal peristalsis. This treatment should be taken at the same time each day to establish a rhythmic movement of the bowel. The cold also stimulates the secretion of the liver, and the portal system, which in turn affects the intestinal circulation. Besides the graduated and cleansing enemas, other hydriatic procedures, such as the hot enema, the cold enema, the umschlag or moist abdominal bandage, the cold sponge both, cold mitten friction, cold douches, and alternate hot and cold douches to the abdomen, wet sheet pack, and cold sitz bath, are very effective through their influence on the sympathetic centers and splanchnic nerves in exciting the various functional activities of the intestine. The Scotch douche, which consists of rapidly alternating applications of heat and cold, when applied to the abdomen, has a strong tonic influence on the abdominal muscles and also on the involuntary muscles of the intestine. So far as external applications are concerned, the Scotch douche is the one par excellence in exciting to greater activity the motor, vasomotor, and secretory functions of the abdominal viscera.

Abdominal massage, both manual and mechanical, is a very valuable aid in strengthening the abdominal and visceral muscles. Special movements to replace viscera are also valuable. An atonic condition of the abdominal muscles favors enteroptosis, which might properly be termed an etiologic factor in chronic constipation. By properly executed massage movements the abdominal muscles are strengthened and the viscera replaced. In cases of prolapsus of the stomach, after replacement by means of carefully executed manual Swedish movements the organ may be retained in place by the natural abdominal supporter. Great relief is frequently experienced by the use of this support.

The support should be adjusted while the patient is in a reclining position.

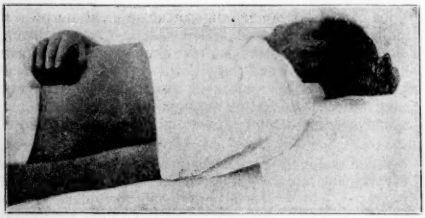
The value of abdominal massage in the treatment of chronic constipation has received insufficient attention, undoubtedly from the fact that there are comparatively few scientifically trained masseurs. The bungling work frequently done by many masseurs, instead of giving satisfactory results, has frequently resulted in increasing the patient's discomfort. When given properly massage works wonders in relieving a constipated condition of the bowels: by it the blood-supply is increasesd, the musculature is toned up, normal secretory functions are established, all of which aid in the re-establishment of a normal peristalsis.

Mechanical devices have been constructed, which, when judiciously employed, give excellent results. Of these the one employed in giving abdominal kneading is of great service in relieving constipation. The apparatus consists of a table with a large aperture near the center of the top. In this opening plays a series of six vertically-placed bars. Each bar is separately connected with an eccentric, to give it an independence of motion. When in motion, these bars have an undulatory movement. The top of the table is so constructed that with

each vertical movement of the bars it moves back and forth, thus bringing the entire abdomen in contact with the kneading bars.

Cannon-ball massage is a valuable adjuvant to other forms of mechanical and manual treatment. This treatment may be employed by the patient himself. It consists in rolling a four-to-six-pound cannon-ball covered with leather over the colon from right to left.

Electricity, although little utilized for the relief of the condition under consideration, in many cases can be used with good results. This is particularly true of the sinusoidal current, which can be used with great advantage where there is an enteroptosis due to relaxed abdominal muscles. When the abdominal muscles are relaxed, the stomach, bowels and other viscera become pendant, and drag on the branches of the prevertebral ganglia of the abdomen, resulting in reflex disturbances which give rise to pain and other symptoms, among which constipation is not an infrequent one. After replacement of the viscera, the application of the slow sinusoidal current to the abdominal muscles, produces results which can not be accomplished by any form of passive exercise.



CANNON-BALL MASSAGE.

By means of a rectal electrode introduced into the rectum, and a pad electrode placed over the abdomen, the musculature of the lower portion of the alimentary canal can be gently exercised by the rapid sinusoidal current. This form of treatment gives most excellent results in those cases in which there is a semiparalyzed condition of the musculature of the rectum due to failure on the part of the patient regularly to evacuate the bowel.

Exercises calculated to develop the body as a whole, and especially to develop the abdominal muscles, are of great importance. If the general musculature of the body is in an atonic condition, that of the alimentary canal is likely to be in a similar condition, and vice versa.

It is indeed surprising to note the readiness with which a functionally disordered sympathetic system will respond to such rational measures as have been outlined, and when these are directed toward assisting the *vis medicatrix naturæ*, the most gratifying results are obtained.

ONE OF the features of the Exposition of Hygiene at Naples is a reproduction of the heating, lighting and water-supply arrangements of a Pompeiian house. Naples now boasts of the finest water-supply in the world since the waters of the Serino have been piped into the city, and the transformation of most of the famous Naples slums into handsome boulevards during the last ten years is an interesting feature to be seen in connection with the exposition.

THE PATHOLOGY OF CRIMINAL ABORTION.*

BY MAXIMILIAN HERZOG, M.D.

PROFESSOR OF PATHOLOGY IN THE CHICAGO POLICLINIC.

CHICAGO.

The pathology of criminal abortion has to establish: 1. The causal nexus of premature expulsion of the ovum with the employment of internal medicinal or external mechanical means, adopted for the accomplishment of the desired criminal attempt. 2. To account for the illness or death of the mother during or after abortion.

The latter part of our subject, that referring to death of the mother, is comparatively easy to handle, because in the latter event cases have been frequently thoroughly investigated. The employment of modern histologic and bacteriologic methods to clear up the pathology of such cases is within easy reach. It is different when we approach the other part of our task. It is a notorious fact that only a small minority of the non-fatal cases, more particularly of the cases not complicated with serious, threatening disease of the mother, ever come to the notice of reputable, scientific members of the profession. Consequently our observations are made on a very small fraction of the cases, of which necessary details are, as a rule, lacking. Our data, therefore, lack reliability when we want to draw correct conclusions or establish general principles. Nor is the numerical insufficiency of the material that may be studied, compared with the enormous total figure of cases, the only ground why our conclusions must be unsatisfactory. The main reason lies in the fact that we know so little about the intrinsic cause of causes which normally lead to the beginning of the act of parturition at full term.

By far the largest number of criminal abortions are brought about by internal, medicinal agencies which enjoy the reputation of being "reliable abortifacients."

Lewin, in a recent extensive monograph on "Abortion by Poisons and other Means," considers in general and in special the dynamics of these abortifacients. In the subsequent consideration of the physiologic and pathologic effects of these abortifacients, we follow the views of the distinguished pharmacologist who has gone over the subject in a very thorough manner.

Lewin states that there are certain medicinal and other preparations which have the property to primarily or secondarily exert a pathologic influence over the uterus and the ovum contained in it. We possess certain poisons which can influence the uterus in such a manner that phenomena similar to those in parturition are produced and that the ovum becomes detached from the fruit bearer. But all internal means which, if taken in sufficiently large doses, may bring about this cycle of changes, are substances poisonous to mother and child alike. They have the property to bring about morbid disturbances of physiologic functions. Even a premature irritation of the muscularis uteri itself must be looked on as something pathologic attaining its highest degree in tetanic contraction. Abortifacients can neither theoretically nor practically be looked upon simply as means to produce prematurely a normal labor. In fact the labor and expulsion are generally brought about secondarily. The primary factors are the damaging pathologic influences disturbing the nutrition, or killing the embryo outright. Internal abortifacients generally act first by indirectly disturbing the nutrition of the embryo, by making the mother sick or even moribund, by producing hemorrhages and by detaching the ovum from the uterus. Artificial abortion by internal means is to

*Read before the Physicians' Club of Chicago, March 26, 1900.

be judged in the same light as spontaneous abortion in consequence of disease of the mother such as syphilis, typhoid, etc. The hemorrhages caused by internal abortifacients occur between the fetal membranes, into the amniotic cavity or into the placenta; they lead to a loosening or to a separation of the ovum.

Other pathologic processes noticed in connection with the internal use of abortifacients are hyperemias in distant organs of the mother, inflammatory processes in the gastrointestinal tract, the pelvic organs and in the ovum and its envelopes. Some abortifacients primarily and particularly act on the gastrointestinal tract and extend their influence secondarily only to the pelvic organs.

As a rule, the ovum is expelled when the toxic effects of the internal abortifacient reaches its climax, or shortly after this period.

A few of the more commonly used internal means to induce criminal abortion may be cited to show how these substances act as poisons producing grave pathologic processes, damaging both mother and child. The pathology of some of these drugs and chemicals has been studied in a number of fatal cases and also experimentally on animals.

Phosphorus, used extensively as an abortifacient in some countries, for instance in Sweden, brings about the general symptoms and changes of systemic poisoning and acts as an abortifacient by producing hemorrhages which detach the fetal membranes. This has been shown experimentally on pregnant bitches.

Oleum rutæ produces gastroenteritis, metritis and hemorrhages.

Tansy (Tanacetum vulgare) has in fatal cases brought about convulsions, cyanosis, spasmodic respiration, hemorrhages from the lungs and bloody discharges from the uterus and vagina.

Aloe, when used in doses large enough to bring about abortion, produces inflammation of the pelvic organs subsequent to gastroenteritis, nephritis, and hemorrhages between the fetal membranes.

Oleum sabinæ, one of the most powerful means to bring about tetanic contractions of the uterus on account of its supposed action on the lumbar centers, produces hemorrhagic inflammation in the gastrointestinal tract and in the kidneys. In a fatal case of abortion produced by Savine, a perforation of the stomach was found post-mortem.

Ergot, which has been used for more than a thousand years, in China, and which is first mentioned in Germany as an abortifacient in 1573, causes tetanic uterine contractions, contraction of arteries in general, increase of the blood-pressure, general convulsions.

From the studies which I have made on the normal and abnormal uterine placenta and the placenta in tubal pregnancy, I am inclined to believe that the first step in bringing about spontaneous abortion is very frequently a hemorrhage into the intervillous space and hemorrhages into the spongy layer of the decidua serotina. These hemorrhages come from the utero-placental sinuses, and their effect must be, as a rule, a loosening, eventually a separation of the ovum. It appears to me that a number of internal abortifacients act in the same manner. They first produce poisoning of the mother with circulatory disturbances and changes in the blood-pressure; these then lead to intervillous hemorrhages and hemorrhages into the spongiosa of the decidua serotina and loosening of the ovum. In this manner the pathology of the induction of premature delivery by internal abortifacients would be entirely analogous to the initiatory steps in spontaneous abortion.

Criminal abortion is often brought about by external and mechanical means and manipulations, instrumental separation of the fetal membranes, perforation of the amniotic cavity, introduction of a foreign body into the uterus, etc. As long as these manipulations do not lead to an infection or a serious trauma, with or without an infection, there is little to be said about them from a pathologic point of view.

If, however, as so frequently does, serious trauma and infection occur, then we meet morbid processes and changes which are of much pathologic interest. The question may here be asked: Is the danger of infection after criminal instrumental abortion greater than after the legitimate induction of premature labor? The danger in the former case is *per se* not greater than in the latter case. But criminal instrumental abortions rarely, if ever, are performed by careful, conscientious aseptic physicians, but, as a rule, by unscrupulous uneducated individuals unacquainted with the theory and practice of modern asepsis. For this reason criminal instrumental abortions are so frequently followed by septic complications. Grave traumatism is also one of the complications often met with in successful as well as unsuccessful attempts at criminal abortion.

Marsais collected 68 cases of wounds of the uterus produced in the performance of instrumental criminal abortion. Maschka reported 5 cases of fatal perforation of the uterus during attempts to rupture the membranes. Death occurred from septic peritonitis. Hektoen, Denslow Lewis, Henrotin and a large number of others have published reports of such cases of rupture of the uterus. The instruments used for manipulations to induce premature delivery in making perforating wounds have sometimes slipped away from the operator and have entered the pelvic or general abdominal cavity. The accident of perforating the uterus may, *per se*, not be followed by any dangerous sequelæ or complications, and pregnancy may go on undisturbed or a uterine pregnancy may be changed into an abdominal one, the fetus escaping through the wound of the uterus into the general abdominal cavity. Cases of the latter type have been reported by Leopold and Henrotin. The factor which constitutes the great danger in serious or even minor traumatism produced in attempts at criminal abortion is the same that threatens in every manipulation to induce premature delivery, namely, the occurrence of infection. By far the majority of cases of instrumental criminal abortion, with or without serious traumatism, which end fatally succumb to sepsis, which manifests itself in the form of septic pelvic or septic general peritonitis. The local reaction is characterized by a seropurulent, or fibrinopurulent exudation found on the pelvic or abdominal peritoneum or on both. In cases rapidly fatal, the local changes are often circumscribed and confined to small areas. In subacute cases there may be abscess in the uterine muscularis, the parametrium and perimetrium. Lingering cases of sepsis after abortion often develop distinct metastatic abscesses in joints, and metastatic septic endocarditis. A form of circumscribed septic infection of the pelvic organs following criminal abortion, to which Henrotin has repeatedly called attention, is the ovarian abscess. For such ovarian abscesses following abortion the corpus luteum verum, or a corpus luteum cyst furnishes the fertile soil for the primary seat of the septic process. The latter may remain localized if operation through the vagina is done in proper time, or it may lead to a fatal general septic peritonitis. It has been my privilege within the last three or four years to examine a number of Dr. Hen-

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rotin's cases of ovarian abscess following abortion, and I have found in such cases, as the cause of the septic process, staphylococci, streptococci, diplococci, and the colon bacillus.

Tetanus has also been observed following criminal instrumental abortion with severe traumatism. Sudden death in consequence of embolism has been recorded following intrauterine manipulations with instruments and intrauterine air, water, or glycerin injections.

If now we attempt to outline the general principles of the pathology of the criminal abortion, we may perhaps characterize them as follows:

1. Premature expulsion of the ovum, if it occurs as the result of the internal administration of abortifacients, is an integral part of the general toxic symptoms, changes and processes due to those drugs or chemicals, acting in their deleterious influence on both mother and child.

2. Premature expulsion of the ovum if it occurs after detachment of the membranes, perforation of the amniotic cavity, etc., is brought about, because after such manipulations which may or may not bring about the speedy death of the embryo, the ovum acts as a foreign body and stimulates the uterine muscularis to contractions, or because intervillous or interdecidual hemorrhages occur.

3. Septic infection in its broadest sense, following criminal abortion is—*ceteris paribus*—not fundamentally different in its general and special pathology, its sequelæ and complications from other septic infections.

I have almost entirely neglected a pathologic consideration of criminal abortion brought about by copious hot douches, irritating applications to the cervix, etc. I have not been able to find a firm physiologic basis for even a modest attempt at explanation of the causal nexus between these means and the desired or accomplished result. I have to repeat in this respect, in conclusion, what was said above in the beginning: The trouble in trying to clear up the intrinsic pathology of certain types of criminal abortion lies in the fact that we practically know nothing definite about the primary factors which initiate normal labor at full term.

COMPLETE OCCLUSION OF BOWEL.

BY DWIGHT E. CONE, M.D.

BINGHAMTON, N. Y.

Nov. 2, 1899, I saw Mrs. A. B. R., of Greene, N. Y., in consultation with Dr. Williams of that town, who gave the following history: An American, aged 63, her family history was good. She had been married for forty-five years and had one child forty-two years ago. She had been troubled with what she called "bilious" attacks ever since she could remember. About thirty-five years ago she had a very severe illness which was described as inflammation of the bowels and, though "given up" to die, she gradually recovered. Since that time her troubles with her stomach, or "bilious attacks," have been more or less constant.

On September 4, last, she was attacked with vomiting and free purging, and after a week felt some better. In a few days there was another and one week later a third attack lasting about one week, after which there was no more purging, but the stomach sooner or later rejected everything taken, nothing having been retained for more than ten hours.

She was attended by a homeopath for four weeks and, for the week previous to my seeing her, by a clairvoyant. Dr. Williams saw her for the first time about six hours before my arrival. There had been rapid emaciation, due to inability to retain any nourishment except rectal enemas, while these had not been able to keep up the vital forces. Temperature was 99; pulse 84 and feeble. There was no headache, and but slight soreness over the abdomen, though no point of marked tenderness. The bowels were much distended with gas so that their outline could be easily discerned through the abdominal wall. There was no dulness on percussion, but tympanitis everywhere. The urine was practically normal. Everything given by mouth distressed her, with the exception of 1/10-gr. doses of calomel and a small quantity of peroxid of hydrogen and "alkalol" in water. There had been no movement of bowels for four weeks, except as enemata were given, and the question that confronted us was whether the obstipation was due to some obstruction or paralysis of the muscular coat. The vomitus consisted of whatever might be taken, together with a tasteless and odorless frothy mucus. On November 5 there was no change in conditions, except that the patient was weaker and more easily exhausted. A saturated solution of sulphate of magnesia to the extent of twenty-four teaspoonfuls—a teaspoonful every ten minutes—was given with no result. Gentle massage over the bowels seemed to give relief. A large enema brought some fecal matter and gas. On November 9, when I saw her for the third time, the pulse was very rapid and the vital forces nearly exhausted, the temperature being 97, the pulse 132. There was no fecal vomiting, although the stomach refused to retain even water. There was no pain, except distress produced by distension of the bowels with gas and pressure against the diaphragm. Deeming the case *in extremis*, I advised against any operative measures. The patient died November 10.

Autopsy was held November 11, with Drs. Williams of Greene, Hitchcock of South Oxford and myself present. The body was very much emaciated and the abdomen tympanitic from the distended bowel. An incision extending from the ensiform cartilage to the symphysis disclosed no subperitoneal fat. The cecum and colon, ascending and transverse, were enormously distended with gas, the small intestine but slightly distended. At the junction of the transverse and descending colon there was a constriction five-eighths of an inch in length and three-quarters in diameter, which completely occluded the lumen of the bowel. On the gastric side of the obstruction there were five old cicatrices, probably from ulcers which had existed at some time, but were now only in evidence by their scars.

There was about one quart of liquid feces in the large intestine, and probably much more in the small, but there were no enteroliths larger than a pea and very few of these. On the mesenteric side of the constriction there was a firm band of adhesion, fan-shaped, with its broad extremity attached to the parietal peritoneum. Attempts to loosen this attachment caused the bowel to rupture on the gastric side of the obstruction. The bowels were emptied of gas and feces and the diseased portion excised. The liver was displaced to the left so that the left lobe lay entirely to the left of the stomach, and the right lobe lay directly on the stomach, as did the distended colon. The stomach was empty.

All the organs in the body were healthy and normal with the exception of the point described in the colon. This constricted part consisted of cicatricial tissue only, indicating that it was caused by ulceration and destruction of mucous and muscular coats of the bowel, and subsequent contraction.

The chief points to me are: 1. Why did we not get fecal vomiting? 2. Why did she not have either localized pain, tenderness or headache? 3. Why had this existing condition of incomplete closure not sooner become complete? 4. Should anything have been done for this patient in the line of surgical operation at the time I saw her?

My answer to these questions would be as follows:

1. The fact that the obstruction was so far removed from the stomach and the enormous size of the bowel beyond the ileocecal valve will in a measure account for our not getting fecal vomiting. Also the pressure of the liver and the colon on the stomach prevented the accumulation of any amount in the stomach, forcing it back by mechanical pressure and thus not only preventing the accumulation of food, but also acting as a cut-off for anything regurgitating from the bowels.. Another thing is the length of intestinal tract available for absorption.

2. It would be conjectural to say why she did not have either pain, localized tenderness or headaches. My theory is that in the attack in September last, enough irritation was produced at the ulcerated point to cause inflammatory action sufficient to entirely close the lumen of the partially occluded gut, thus producing complete intestinal obstruction, but so low down in the bowel that absorption still took place. Her diet had been very simple and so little of it was retained after complete closure that there was not enough excrementitious matter to produce auto-infection. The real mischief, in my opinion, was done thirty-five years ago, hence there was no acute congestion or pressure on nerve filaments, but simply the discomfort caused by the great balloon in the abdominal cavity.

3. As to why this existing condition of almost complete closure had not sooner become complete, her history was that for the past three years her bowels had been more regular and her health much better, until the attack in September. Still, the same caution in regard to the diet had to be observed. Now why it did not sooner cause a wreck, no one knows.

4. As to whether anything should have been done in a surgical way at the time I saw her, I presume many would say a resection should have been made at once. But we should bear in mind that Dr. Williams had seen her but a few hours before I saw her, also for the first time. We had nothing but her history as given us, and she was then so weak that she would have to rest after every sentence and then the sentence had to be short. Her emaciation was marked and there was no vital energy stored up, the reserve, as the result proved, being nearly exhausted. Again, a median exploratory incision would not have given room to operate on the diseased portion, and the only way would have been to close the central incision and make an oblique incision parallel with the ribs on the left side, directly over the constricted portion of the bowel. This would have been a formidable undertaking under any circumstances, even with a large reserve of vital force to rely on for recovery. Still, I feel now that were I to meet a similar condition again, I would urge an exploratory operation.

THE EDITOR of the *N. Y. Christian Advocate,* Dr. Buckley, recently said that "Christian Science," as a system of therapeutics, would have died ere this if it had not been put forward as a religion; and it would have died as a religion if it had not been put forward as a system of therapeutics.

QUININ AMBLYOPIA.

BY M. COPLAN, M.D.

EX-HOUSE PHYSICIAN, LEBANON HOSPITAL, NEW YORK CITY.

CLEVELAND, OHIO.

Mrs. S., with her boy, 3 years old, called at my office on Dec. 2, 1899, stating that her child had not been feeling well for the last few days, and that his bowels were very loose. The family history was negative, the child's complexion was sallow, with slight anemia, and a coated tongue. He looked dull and depressed and refused to answer any question, not taking any interest in his surroundings. Temperature per rectum was 98.8 F., pulse 106, respiration 38. His mother stated that his bowels moved about eight or ten times during the day, that he had no appetite, and had ceased to play as he once did.

I prescribed small doses of calomel followed by magnesium sulphate and an antidiarrheal and tonic mixture, put him on a liquid diet, told the mother that she must keep him in bed, and if he was not better to let me know.

On Dec. 3, at 9 a.m., I was called and found my little patient vomiting, with a flushed face, injected eyes, the surface of the body hot, and asking for water all the time. Temperature per rectum was 102 F., pulse 126, respiration 44. Thoracic and abdominal examination revealed a yellowish skin, enlargement of the liver and spleen, particularly the latter, and tenderness all over the abdomen.

The mother said that "the child felt very cold about an hour ago, and acted as if he would have had convulsions;" also that he complained of feeling cold before, and sometimes he shivered, but she did not pay much attention to it, thinking that it was due to the weather; she was unable, however, to say when he commenced to complain of feeling cold, and how often.

With the aid of the microscope I diagnosed it a case of malarial fever of the quotidian type. I ordered cool sponging and cold lemonade frequently, and prescribed the following:

℞. Quininæ sulph. 3
Syrup yerbæ santæ comp. 60
M. Sig. One teaspoonful t. i. d.

I ordered her, verbally, to give two teaspoonfuls the next morning, about 7:10 o'clock, after the child had taken some food; after that she was to follow the previous directions.

I called on December 4, about 2 p.m., and found my patient asleep, and being informed that he was much better and did not have any attack that morning, I left without making any further inquiry, promising to come earlier the next day. On the following day I saw him about 10 a.m., and was astonished to find him complaining of not being able to see, asking where he was and why they did not light the gas or the lamps.

On questioning the mother, I was told that she gave him two teaspoonfuls four times the previous day, and once on the morning of the same day, so that he had taken about 30 grains in twenty-four hours. On examination I found total blindness of both eyes. The ophthalmoscope showed a pale optic disc, and it was very difficult to make out the condition of the retinal arteries. I at once discontinued the quinin and prescribed strychnin, 1/200 gr. t. i. d. The patient recovered gradually, and on the fifth day, viz., on December 10, could see almost as well as he did before.

A similar case came under my observation during my service at the Lebanon Hospital, which history I will describe in brief:

Mrs. H., aged 30, was admitted to the hospital complaining of headaches and having chills and fever. We soon diagnosed a very obstinate case of malarial fever of the duplicated quotidian type, paroxysms taking place between 7 to 8 a.m. and p.m.; temperature ranging between 104 and 106 F. Quinin sulphate, in doses of 15 grs. three times daily, was administered without any effect. Pilocarpin hypodermically, ergot, liquor potass. arsenitis, methylene blue, piperin, succus lemonis, etc., was tried without preventing a single paroxysm. With the approval of Dr. Zemansky, the visiting physician, we gave her quinin sulphate , 30 gr., three times a day, and 45 grs. two hours before the paroxysm usually occurred; the results were most satisfactory, reducing the temperature in the morning to 100 F. and preventing the afternoon paroxysm entirely, the temperature coming down to 99 F.

On the following day, when I made my usual morning rounds, the patient cried out: "Doctor, I am blind, I can't see, where am I!" She had then received 150 grs. of quinin in twenty-eight hours. On examination we found total blindness of both eyes. Dr. Wm. Cowen, the hospital ophthalmologist, examined the patient and found the optic disc pale, and the retinal blood-vessels very much narrowed. We at once discontinued the quinin, and prescribed strychnin sulphate and digitalis, the patient recovering full sight on the eighth day.

Looking up the literature at my command on this subject, while many cases of quinin amblyopia have been reported in adults, very few have been reported in the very young. Burns[1] reported a case where a child, 3 years old, ingested 30 grs. of quinin in eighteen hours, causing amblyopia. Harlem[2] reported one where an adult took 100 grs. in a few hours, causing amaurosis. Elis[3] reports a case where an adult took 120 grs. in twenty-four hours, causing total blindness. All recovered full acuity, except the last one, which only recovered some of his former vision.

780 Lorain Street.

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REPORT OF UNIQUE CASE OF APPENDICITIS, WITH SOME REMARKS ON TREATMENT.*

BY JAMES T. JELKS, M.D.

HOT SPRINGS, ARK.

On the night of April 26 I received a note from Dr. A. S. Garnett, asking me to see a patient with him, in consultation, a woman with the following history: On the Friday previous she was feeling very well indeed and climbed Hot Springs Mountain with a party of friends. Saturday night she was taken ill with pains in the abdomen, which demanded relief. Dr. G. A. Hebert was called and found her suffering with the pain and a temperature of 100 F. He gave her a dose of morphin hypodermically, which relieved her. Sunday she had some pain, with a temperature of 101 F., and this lasted through that day and night. Monday found her free from fever, with normal pulse, but slightly irritable stomach, and vomiting whatever she took. Her bowels responded to a cathartic Sunday night and Monday morning. Tuesday they refused to move, nausea increased, temperature and pulse were normal, and the abdomen began to distend. Wednesday the bowels were constipated and there was no escape flatus; the pulse and temperature were normal and there was considerable vomiting with the bowels greatly distended, little or no pain.

Wednesday night at 11 o'clock she vomited stercoraceous material, and it was at this time that I was sent for and met Drs. Garnett, Greenway and Hebert in consultation; I found the abdomen distended, and slight pain in the epigastric and appendicular region. The vomited material was unquestionably stercoraceous in character. The temperature was normal, pulse 65, full and regular. The face of the patient bore no mark of suffering nor serious illness, whatever. The gentlemen present had diagnosed intestinal obstruction possibly from bands of adhesions. This diagnosis was encouraged by reason of the fact that six years previously she had one ovary removed by the late J. H. Etheridge of Chicago. Her health did not improve after this operation, and one year ago, while in San Francisco, the other ovary was removed. At this latter operation many bands and adhesions were found, hence it was easy for us to believe in the probability of obstruction produced by bands, in the present illness.

In this light of the case I advised surgical interference in the hope of saving the life of the patient. The situation was explained to her and her husband and they readily consented. Thursday morning she was removed to the Ozark Sanitarium, and with the assistance of Drs. T. J. Crofford, of Memphis, A. S. Garnett, G. A. Hebert and John A. Gaines, of Hot Springs, I operated. An incision was made between the umbilicus and pubic regions two inches in length, through the old scar. I found the omentum adherent, hence I enlarged the incision upward until I got above the line of the omental adhesions. These adhesions were separated by the fingers, and I began to look for intestinal hernia over some band. The intestines were very much distended with gas, and very dark in color; in spots quite black. With the assistance of Dr. Crofford they were rolled out and covered with warm, moist, sterilized towels. We searched for twenty minutes or more expecting to find an intestinal hernia over the band or bands. Failing in this we turned our attention to the appendicular region, where we found the gangrenous and perforated appendix, which was removed in the usual manner and the intestines rolled out of the abdominal cavity. We found the peritoneum ruptured in three places, from overdistention with gas. The appendix having been removed, the abdominal cavity was thoroughly washed out with sterilized salt solution; the intestines also received a thorough washing in the same solution; they were now open in two places and, by the use of rubber gloves, they were easily stripped through my fingers and emptied of gas and feces. These openings in the intestines were closed by Lembert sutures and the intestines replaced in the abdominal cavity. Iodoform gauze was carried to the bottom of the pelvis, and around the stump of the appendix; the cavity again washed out with sterilized salt solution and the abdominal wound closed with through-and-through sutures of silkworm gut, and the patient carried to bed in an exhausted condition. Chloroform was used as anesthetic, with occasional changes to ether. Dr. Gaines, the anesthetizer, was compelled to give her two extra doses of strychnin, 1/20 gr. each, but she died at 8:20 p.m. No post-mortem was held.

This case teaches one lesson which was new to me, that a patient may be dying of general septic peritonitis with a normal pulse and normal temperature. In my experience this is unique. Had I known this patient was suffering from a septic peritonitis as the result of

*Read before the Mississippi Valley Medical Association, Chicago, 1899

a perforated and gangrenous appendix, I would not have operated, because such operations do no good, and bring the work of the abdominal surgeon into bad repute. We may set it down as a rule, to which there are few, if any, exceptions, that general septic peritonitis of thirty hours' duration always results fatally, and that surgery offers these cases no hope.

The question of treatment of appendicitis is a very serious one, and is not yet settled. Much has been written on this subject within the last few years. About twenty-five hundred books and monographs have been printed and the last word has not yet been said. As we see the patients they may be divided into two classes, those seen early before pus has formed or before perforation has taken place, and those seen later.

In forming an opinion as to operative or non-operative treatment, two other factors are also to be taken into consideration, viz.: the mortality when treated medicinally, and the operative skill and technique of the operator. Whether we will or not, these last two elements should have considerable weight in determining the line of procedure. For instance, given twenty cases of appendicitis occurring in the course of five years, in the ordinary village or town, are the majority of patients safer under the medicinal or surgical treatment? I am not discussing the ideal treatment under ideal surroundings and by ideal operators. That is probably settled. We have facts to face, not theories. Then what are these facts? A patient in an ordinary house, attended by the average village physician, is seen for two or three days and finally appendicitis is diagnosed, and if he does not operate the village surgeon is called in. Possibly in the course of his ten or fifteen years of practice he has operated on the abdomen as many times, and the doctors decide to operate. What are the facts here? Simply these: it is now too late for an early ideal operation and too soon for the late one. Still, celiotomy is decided on and carried out to the best of their ability. The patient may recover, most probably will die, and in that community operations for appendicitis are discredited. The next patient, when diagnosed early and offered the operation, remembers the result of the former case and declines until perforation and general septic peritonitis is set up, and then consents. The honest surgeon is willing to do all he can to save the patient and, perhaps anxious for the celiotomy and consequent prominence which it will give him, undertakes what is practically a hopeless task. In this community in the long run, which is the safer line for the majority of patients? We do not hesitate to say we believe the majority, under these circumstances, will do better under proper medicinal treatment than under surgical interference.

Again, given an ideal surgeon, with ideal surroundings, and ideal doctors who make an ideal diagnosis, i.e., in the first few hours of the attack, and insist on immediate operation, we dare say the majority of this class of cases under this set of circumstances are far safer with immediate section and removal of the appendix.

Do we get the cases this way? If we do not and have an aseptic conscience and average ability as surgeons, we say operate immediately. When the case is from four to six days' old, the answer should be different. Here we have a different set of circumstances to meet, and the patient will have a better chance for his life if we wait until the acute symptoms have subsided and operate between the attacks. We say between the attacks for it is probable that others will follow.

What are the statistics of medicinal treatment of appendicitis? The answer to this question depends on what to the physician attending any case is an unknown quantity, viz.: the character of the infecting agent, and the powers of resistance of the individual. Could we before have known these conditions, the course we should pursue would be plain.

It may be said that when the patient is one with the so-called catarrhal form of the disease—I do not believe in using such an expression—he will get well under the administration of large doses of sulphate of magnesia. Practically all such recover. On the other hand, if they are what is known as the "fulminating kind," 86 per cent. die if not subjected to very early operative interference. We repeat that, given a case within the first twenty-four hours of its occurrence, in the hands of a surgeon who operates frequently, and whose technique is correct, with proper assistants and nurses, that patient will be safer with celiotomy than without; but when the patient is in the country or village, and seen late in the disease, and seen by the surgeon who does not operate on this class of cases often, we believe the majority of patients will do better without operation than with it.

Doctors are frequently captivated by the work of surgeons in large cities, and when the man says he operated in all cases, the surgeon in a small village thinks he must also do so. He forgets that his opportunities to operate come very seldom, while the other man probably operates for appendicitis, as I have seen them do, two or three times in one day.

The statistics of Dr. John B. Deaver, of Philadelphia, with 468 cases in two years, or Dr. J. B. Murphy, of Chicago, or Dr. H. M. Richardson, of Boston, must be far better than those of the surgeon who opens the abdomen but six or eight times a year. This being the case, we believe much harm may be and is being done by the cry that every case of appendicitis should be operated on as soon as seen, no matter what the stage of the disease or the skill of the attending physician or surgeon.

The result of operation in this disease depends again on whether the section is made during an acute attack, or after the attack has passed off. For instance, many operators have a mortality of 15 to 25 per cent. in acute cases, with no deaths in hundreds of cases operated on between attacks.

In a personal communication from Dr. John B. Deaver, he says that in 196 cases of chronic appendicitis subjected to abdominal section in the last two years, he had no deaths. In 264 acute ones, operated on in the same time—two years—the mortality was 17 per cent. Here we have one of the most successful operators in this country, and yet in acute cases his mortality is 17 per cent. Is the mortality in cases treated medicinally any greater than this?

We can not better close this paper than by giving some statistics recently gathered and published by Dr. Chas. J. Whalen, of Chicago:

Fiitz says that 26 per cent. and Stimson that 25 per cent. of all cases of appendicitis prove fatal. According to Fiitz, 60 per cent. of 176 cases of perforated appendicitis died during the first five days, 56 during the first four days, 28 during the first three days, and 8 during the second day, though a large number of cases of simple appendicitis are said to terminate favorably by resolution. Buel, in 1894, placed the mortality at 5 to 6 per cent., although he had collected 450 cases, with only 8 deaths. Deaver collected 200 cases with only 2 deaths.

Armstrong says that in the leading Montreal hospital, from 1853 to 1890, before operations were done—that is, in pre-operative days—the mortality was 23.8 per cent. He reports 517 cases, in which the average mortality was 12.8 per cent. Of

this number 389 were operated on, and 128 treated without operation. In this latter list the mortality was 3.12; of 319, 81 were interval cases, in which there was but 1 death; of 305 operated on in acute stages, 63 died.

Relapsing Appendicitis.—Dr. Kuemmel, of Hamburg, read a paper with this title, which was a review of 100 successful resections of the vermiform appendix. In addition to his own cases, the speaker had collected the statistics of a nearly equal number of cases of relapsing appendicitis in which the operation had been refused. In these cases the mortality after three years was greater than in the operated cases, while the morbidity consequent upon the recurring attacks made the second series of cases incomparably worse.

Dr. Sonneberg, of Berlin, reported 250 operative cases, exclusive of several of tuberculous disease of the appendix. There were 66 cases of simple and 128 of gangrenous appendicitis. In the 250 cases there were 43 deaths. This mortality of 17 per cent. represents the mortality of the disease, not of the attacks.

The 43 deaths were encountered in cases of the perforative form of appendicitis, with complications, as lung and pleural affections, thrombosis, peritonitis, etc.

Kuemmel, of Hamburg, in his statistics mentions 51 cases of recurrent form, operated upon during the interval between attacks, with but 1 death. Samuel Lloyd reported 558 cases, of which 226 were operated upon, with 192 recoveries. In direct contrast to this, 265 cases were treated conservatively with only 60 recoveries.

Hawkins reports 264 cases which occurred at St. Thomas' Hospital, with 190 recoveries, making a mortality rate of nearly 27 per cent.; 59 of the cases had one or more previous attacks, of which 6 died, making a mortality rate of 10 per cent. under medical treatment.

Deaur (*Med. News*, Dec. 21, 1895) maintains emphatically that early operation is the only justifiable procedure. He has operated upon 200 cases, with only 2 deaths, and these in the first hundred.

Herman Kuemmel (*Berlin Klin. Woch.*, April 11, 1898) presents a clinical study of 104 cases of recurrent appendicitis in which operation was performed between attacks. There was not a death in this series.

Examination of the appendices which had been removed showed that in not one case had the organ become normal after the attack.

I have been able to collect 6500 cases, which I classified under the headings: Catarrhal, Suppurative, and Recurrent Appendicitis, of which 1400 were treated medically. Two hundred and fifty-two of these died, a mortality-rate of about 18 per cent. Of the remaining 5100, 987 were operable upon during the catarrhal stage. Fifty died, a mortality of 20 per cent. One thousand four hundred and eighty-three were cases of recurrent appendicitis, with 35 deaths, a mortality of 2.25 per cent. Many report series of 100 or 200 cases without a single death. This low mortality rate in recurrent appendicitis is due to the immunity to infection acquired by repeated irritation. It will be at once apparent to you that out of 5100 subjected to operation, 1483, or 29 per cent., were cases of recurrent form of the disease. As a last word, let us close with the following: Dr. W. W. Keen, of Philadelphia, in discussing appendicitis at the Denver meeting of the AMERICAN MEDICAL ASSOCIATION, concludes his remarks as follows: I protest against the use of opium in rare cases, as it has a tendency to mask the symptoms of the disease, and leads the patient to the grave. I protest against the argument of Dr. Niles, that every case ought to be operated upon, and the appendix is never to be left.

Out of 300 post-mortems on as many bodies, it was found that 100 of the individuals had had appendicitis at some time in their lives, and had all recovered from the disease. I challenge the assertion that through surgical operations all but 2 per cent. of cases can be saved. I challenge any operator in the room to take 100 well persons and operate on them without killing more than 2 per cent. We all fail, gentlemen. I do not know why, but we all fail. I do not believe in operating on all cases of appendicitis.

I would rather have a live man with an appendix, than a dead one without one. (Applause.) I do not believe with the witty Frenchman that no case is complete without a post-mortem. (Laughter.) If the patient is no worse after forty-eight hours of observation, let him alone: Let him get well.—*Western Medical Review.*

218 Central Avenue.

MEDICINE AS A BUSINESS PROPOSITION.*

BY G. FRANK LYDSTON, M.D.

Professor of the Surgery of the Genito-Urinary Organs and Syphilology, in the Medical Department of the State University of Illinois.

CHICAGO.

So live that when thy time has come to join the innumerable caravan which moves to that mysterious bourne peopled by doctors who have died of innutrition, thou go not like the general practitioner called at night, scourged from his office, but, sustained and soothed by the motto "Never trust," approach thy grave like one who wraps his stocks and bonds about him and lies down to pleasant dreams.[1]

Some months since I had the honor of addressing a medical club of Chicago, composed of prominent general practitioners. I chose for my theme "The Business Aspect of Medicine." The resulting discussion was so animated, and the participants were so interested in the subject, that I promised to amplify and publish my remarks—a promise that for many and sufficient reasons I have hitherto been unable to keep.

That there are a number of points in this address on which many of my professional brethern will differ with me—possibly with some degree of warmth—I am well aware. Having, however, the material welfare of the profession at heart, and believing that the ventilation of truths—even unpleasant ones—is healthful in the end, I will proceed as though expecting only favorable criticism.

Lest the accusation of being Pharisaic be hurled at me, I will take this opportunity of admitting the somewhat obtrusive fact that in some directions I am part of the very machinery the operations of which I am about to criticise. It will hardly be asserted that what I have to say is a wail of distress—any grievances of my own that may be presented are merely illustrative, and being personal, are not hearsay evidence. A spirit of professional altruism, and not a desire to present a bill of little complaints that are out of harmony with self-evident personal results, is my incentive for this lecture. I have in mind the interests of the profession at large, and especially those of the rank and file, who, while they do not sound the cymbal so loudly as some of us college folk, yet constitute the bone and sinew of the profession. Should what is to follow prove somewhat peppery in spots, the mantle of charity should be thrown over what is, at worst, merely the personal equation of the pen.

FINANCIAL REWARDS OF THE PRACTICE OF MEDICINE.

As a general proposition it is safe to assert that the practice of medicine from a business standpoint is a failure. The successful exceptions merely prove the rule. It is also safe to assume that the elements of financial non-success are cumulative in their action—a fact that is easily proved by hospital and dispensary statistics. The average income of the physician is less than that of the high-class artisan, the telegraph operator in an important office; and far less than that of the wide-awake commercial traveler. This, like many other points that will follow it, is threshing over old straw, but such threshing is unavoidable.

The practitioner of medicine, like every man who re-

*Lecture delivered at the public meeting of the St Joseph County Medical Society, South Bend, Ind., Jan. 30, 1900.

[1] With apologies to the shade of W. C. B.

lies on his own hand and brain for a livelihood, is entitled to a bit of earth that he and his may call their own, at least a modest competence, and a well-earned rest when his sun begins to set and the twilight of his life approaches. How many doctors are in a position to enjoy or even render less awesome their twilight days? As city doctors are all supposed to be rich—at least by the public, that does all it can to prevent their becoming so—it would be interesting to know what proportion of them, even in metropolitan medical centers, own their own homes or have property investments. A far smaller proportion than is just, I fancy.

The assertion has been made that the general poverty of the medical profession is due to a lack of appreciation and a contempt for the rights of the medical man on the part of the public at large. This, however, is a secondary matter which, being self-evident, overshadows the primary cause—the asinine stupidity of the profession itself. As a broad general proposition the reputable profession as a whole has about as much sense as the dodo, and, unless signs fail, will, sooner or later, meet the fate of that remarkable bird. How the profession can expect the respect and appreciation of the public when it has no respect or appreciation for itself is difficult of conjecture. The public can not be expected to keep clean the nest of the medical dodo. Furthermore, the public quite rationally values the stupid thing according to its self-appraisement.

Primarily, the practice of medicine is supposed to be founded on a mawkish, blanket-like sentiment of philanthropy, which is expected to cover both God's and the devil's patients—the pauper and the dead-beat—the honest man and the rascal—the rich and poor alike. The doctor is expected to wallow eye-deep in the milk of human kindness, scattering it broadcast for the benefit of humanity, but he is in nowise expected to even absorb a little of it, much less to swallow a gulp or two occasionally for his own benefit. By way of piling Pelion upon Ossa, the public, having discovered that the doctor sets litte value on his own services, proceeds to eye him with suspicion; the tradesman is very careful how he trusts doctors. Of course, the tradesman has his own family physician "hung up" for a goodly sum, but—knowing doctors to be poor business men—the tradesman often cheats them in both the quality and price of goods. It is a great and goodly game that plays from both ends and catches the victim in the middle. The tradesman has one redeeming feature, however; he does his best to teach his doctor patrons a lesson. He either sends his goods C. O. D. or, if the doctor be one of the favored ones, he finds the bill in his mail bright and early on the 1st of the month. I often think my tradesmen must sit up all night in order to get their bills in bright and early on the 1st. If not paid by the 15th, a collector is usually at the doctor's office to see about it. Yet the professional dodo—my apologies to the shade of the "sure enough" dodo—will not learn. He goes on and on, neglecting his accounts, mainly because he is afraid of offending his patrons and driving them off to some other doctor who isn't so particular; and the worst of it is, there are plenty of contemptible fellows who draw their own salaries promptly when due, or present their bills for goods with frantic haste, who consider a doctor's bill a flagrant insult. Will nothing ever inspire the doctor with courage enough to despise and ignore such contemptible trash? Does he prefer the rôle of a lickspittle to that of an independent and self-reliant man?

As illustrations of the value the profession sets on its skill and learning, the amount of gratuitous work done is striking. Our pauper—or pauperized—patrons are divided into several classes, viz: 1. The free hospital, clinic and dispensary class. This is on the increase. According to Dr. Frederick Holme Wiggin 51 per cent. of all cases of sickness in New York City are now classed medically as paupers, as against 1.5 per cent. twenty years ago! This is appalling. Of these alleged paupers it is safe to say that 75 per cent. are able to pay full or at least fairly good fees. Why should pauperism be shown so prominently in the matter of medical bills, as compared with other necessities of life? And why should the profesion carry a burden that belongs to the public? 2. Free patients of the private class: *a*, those who can pay but will not, i. e., dead-beats and swindlers; *b*. persons whose circumstances are such that the doctor feels in duty bound to render no bills; *c*, persons who presume upon social acquaintance with the doctor to "hold him up" for friendly, perhaps informal, consultations.

It requires no great mental effort to see the terrible load the profession is carrying—self-inflicted, and often for fallaciously selfish motives, it is true, but none the less heavy. The college and free hospital may be the professional "old man of the sea," but so much the worse for the medical Sindbad. Whatever the explanation, private practice is on a par with dispensary practice with regard to the impositions practiced on the doctor. It is safe to say that, of the sum-total of surgical and medical patients of all kinds and social conditions under treatment in Chicago at the present time, over one-half are paupers—honest or dishonest. Pay the doctor for the work involved in this wasted and misapplied charity, and the medical profession would plunge into a sea of prosperity that might swamp it. And it is not only the rank and file of the profession that suffers. Ye celebrated professor, reaching out for glory, yea, into infinite space, clutching frantically at everything in sight, no matter how profitless—providing the other fellow doesn't get the case—often defeats his own ends. And the great man dies, and is buried, and we take up a collection for his widow, to meet his funeral expenses, and sell his library—six feet of earth make all men of a size. *Sic transit gloria mundi.*

> And when like dog he's had his day,
> And his poor soul hath passed away,
> Some friendly scribe in tearful mood,
> Will tell the world how very good
> The dear departed doctor was—
> And thus win for himself applause.

FALSE PRETENSES OF PROSPERITY.

One of the most potent causes of professional poverty is the mania of the doctor for a pretense of well-doing. He exhibits this in many ways. One of the most pernicious is an affectation of contempt for money. This it is that often impels him to delay the rendering of his accounts. Oftentimes his patient offers to pay all or part of his bill. With a lordly and opulent wave of his marasmic hand the doctor says, "Oh, that's all right; any time 'll do." And the triple-plated medical imbecile goes on his way with a dignified strut that ill befits the aching void in his epigastric region, and is decidedly out of harmony with the befringed extremities of his trousers. And then the doctor apologizes to himself on the ground of a philanthropy that is but the rankest and most asinine egotism *en masque*. When will the doctor understand that payment deferred maketh the patient dishonest? When will he consider the necessities of his wife and children as outweighing the feelings of the patient who owes him money? When will he be a

man, and not a time-server and truckler to appearances? He would take the money did he not fear the patient might suspect that his doctor was not prosperous. He wishes the patient to think that the doctor and his family dine with the chameleons, or are fed by ravens. Yet the medical Elijah waiteth in vain for the manna-bearing birds—they know him for what he is, a counterfeit prophet who vainly yearns for the flesh-pots of Egypt—who has a ponderous and all-consuming desire for pabulum, and a microcephalic capacity for finance.

A large proportion of the profession in cities carries its false pretense of prosperity into all the affairs of life. An expensive establishment in a swell locality, a turnout that shall be the envy of all his competitors, the opera, social events galore, expensive dinners, subscriptions to this, that and the other thing in which he has, or should have, no concern—such is the system of blackmail that the doctor often allows to be levied on himself by that hydra-headed, brainless bugaboo termed "society." He submits to the blackmail because he is afraid society will think he is not prosperous unless he makes a splendid appearance, "and," he says to himself, apologetically, "they don't want a fellow who isn't prosperous, you know." A yearly trip to Europe or some swell resort comes in by way of trimming, and before our aspiring friend is done with his tribute to "sassiety," he finds that he has more than he can do to make ends meet. If he only had the spirit of a Vanderbilt, it would do him as good a turn as would quite a bit of that gentleman's money, for he would say "society be d—d," and forthwith stand on his own bottom.

The gilded show of prosperity reacts against the doctor's interests in the same way as his refusal to accept money—the patient, judging by externals, thinks the doctor doesn't need money, hence tardily, if ever, pays his bills.

One of the worst results of a pretense of opulence on the part of the doctor is the inducement it offers to foolish young men to enter the profession. Thinking that doctors make their money easily, and plenty of money at that, young fellows, often illy-adapted to medicine, are frequently induced to join the already over-crowded ranks of the profession.

Speaking further of catering to appearances, how often the struggling young doctor takes unto himself a partner in his poverty, by marrying. Society has an unwritten law that unmarried doctors are not *au fait*. The young doctor feels that way too—and there is usually a sweet girl somewhere who agrees with him—but he doesn't see how he is to support a wife. However, he yields to the pressure of social custom and—two miserable people stand where one stood before. How long will it be before the profession meets the prevalent social opinion on the marriage of doctors with the contempt it deserves? The doctor, of all men, should not marry until he is well over the breakers and into the sea of prosperity. Any other view is mere twaddle, and founded on mawkish sentimentality and a strabismic notion of propriety. The doctor should disregard the opinions of the old women of society—whether the old women be with or without trousers. Why should he be disturbed by the raucous ruminations of these "psychic humpbacks."

LACK OF JUDGMENT OF HUMAN NATURE.

Doctors are supposed to be keen judges of human nature. I often think that this is absolutely without foundation. Defective knowledge in this direction is a very expensive luxury to the medical profession. The confidence-man and sharper can not fool the average doctor into buying a gold brick, perhaps, but they can come very near it. The oily-tongued and plausible man with a scheme finds the doctor his easiest prey. The doctor has often hard enough work to wring a few dollars out of his field of labor, and it might be supposed that it would be difficult to get those dollars away from him, but no, it's only too easy. He bites at every thing that comes along—he often rises to a bare hook. Mining stocks, irrigation and colonization schemes, expensive books that he doesn't want, will never need and couldn't find time to read if he would, histories of his town or state in which his biography and picture will appear for $100—proprietary medicine schemes, stock in publications of various kinds; he bites at everything going—he has *embonpoint cérébrale*. Oh, but the doctor is easy! I have very painful memories. The best investment I ever made was when I paid a fellow for painting a sign for the door of my consultation room, reading: "Notice—Persons with schemes will please keep out. I have some of my own to promote."

COLLEGE, HOSPITAL AND DISPENSARY EVILS.

It is rather a delicate matter, perhaps, for a college professor to touch on the evils of medical colleges in their relation to the business aspect of medicine, but I shall nevertheless speak plainly and to the point. While theoretically the better class of medical colleges were founded solely for the advancement of science, it is none the less true that self-aggrandizement has been the pedestal on which most of our disinterested giants in the teaching arena have stood, and are standing. Remove the personal selfish interest of college teachers and most of our schools would be compelled to close for lack of instructors. Let us be honest with ourselves, please. Not that self-interest is reprehensible—I hold the contrary. One may teach for salary, reputation, the love of teaching, or a desire for self-improvement, it matters not, for if he be of the proper timber he is the right man in the right place. Self-interest makes better teachers on the average than philanthropy, providing the primal material is good.

Granting that self-interest is the mainspring of the college professor, is he very "long-headed" from a business standpoint? I submit the following propositions as proving that the average college professor defeats his own ends: 1. He devotes to teaching time and labor over and above the exigencies of ordinary practice which, if devoted to cultivating the good will of the laity, would be much more profitable. 2. While cultivating the acquaintance and friendship of the alumni of his own school—a few each year—he alienates from himself the friendship of every alumnus of every rival school, the instant he begins teaching. 3. He assists in educating and starting in life, young, active competitors to himself. 4. He is compelled to devote a large percentage of his time to the gratuitous relief of medical students and physicians. He may give his time cheerfully, but he yields up his nerve force just the same. 5. Most college professors are less successful in the long run than the more fortunate ones of the rank and file who have never aspired to teaching honors. 6. Greater demands are made on a professor's purse than if he were in the non-teaching ranks of medicine. He, more than all others, is expected to put up a prosperous appearance.

The college clinic—especially of the surgical sort—is far-reaching in its detrimental effects on professional prosperity. Few or no questions are asked, and the millionaire is being operated on daily, side by side with the pauper, free. And the blame does not always lie with the professor who runs the clinic. General practitioners

bring patients to the free clinics every day, with full cognizance of their ability to pay well. Why doctors will persist in thus cheapening surgical art is difficult of conjecture—but they do it just the same.

Of course, the college clinic is supposed to be a theater of instruction. Often, however, it is but a stage on which comedy-dramas are enacted. A brilliant operation that nobody six feet away can see, and an operator bellowing at his audience like the traditional bull of Basham—in medical terms that confuse but do not enlighten, terms that are Greek to most of the listeners—this is the little comedy-drama that is enacted for students who have eyes but see not; who have ears but hear not. Instruction? Bah! Take the theatric elements, and the plays to the gallery, out of some college clinics and there wouldn't be a corporal's guard in attendance.

Worse than the free clinics are the so-called charitable hospitals. Much has been said of dispensary abuses, but few have had the courage to say anything in adverse criticism of these institutions. While nominally founded to fill "a long-felt want"—and the number of long-felt wants from the hospital standpoint is legion—these hospitals are founded on strictly business principles, save in this respect—the people who found them feed on their innate capacity to get something for nothing. The first thing the founders do is to get a staff of doctors to pull the hospital chestnuts out of the fire. The members of the staff think that the hospital is performing the same duty for them, and everything is serene. And so the surgeon goes on operating on twenty patients—fifteen of whom are able to pay him a fee—in the hope that one among them all is *willing* to pay him a fee. Exaggeration? Well, I can not swear to the accuracy of the foregoing, but an eastern surgeon of world-wide fame once told me that for every patient who paid him a fee he operated on nineteen for nothing; and this man has no public clinic, either. Is it conceivable that the nineteen free patients are all paupers? Many of them go to my friend for operation, from very long distances. Ought the railroads and hospitals to have all the profits? Have we not all had similar experiences in a lesser degree? With the development of charitable hospitals far in excess of any legitimate demand, it has come to pass that surgery is almost a thing unknown in general city practice. Even the minor operations have left the general practitioner—to return no more so long as there are free hospitals and dispensaries. Where is the emergency surgery, of which in former days every practitioner had his share? Railroaded off to the "charity" hospitals to be cared for gratis.

In a recent conversation with a practitioner of thirty years' experience, I said, "Doctor, you used to do a great deal of general surgery throughout this section of the city. Have the hospitals affected your practice in that direction to any extent?" He replied, "Surgery with me is a thing of the past. Even emergency cases are carted off to the nearest hospital. If by chance one does fall into my hands, it is taken away from me as soon as I have done the 'first-aid' work." Personally I see very little use in teaching surgery to the majority of students who intend to practice in our large cities—they will have little use for surgical knowledge.

Here are three cases in illustration of the way our "charitable" hospitals antagonize the business interests of the profession:

1. A very wealthy farmer engaged me to perform an exceedingly important operation. It was understood that $1000 was to be the honorarium. He was afterwards advised to go to a certain "religious" hospital where he was operated on by an eminent surgeon who received nothing for his services. The patient paid $15 a week for hospital accommodation, and $25 a day to his family physician, who remained with him "for company." What a harmonious understanding between the patient and his family doctor—and what a "soft mark" that surgeon was. I had the pleasure of telling the latter of the gold mine he didn't find, some time later, and the shock to his system amply revenged the body surgical.

2. A patient who was under my care for some weeks and paid me an excellent fee, finally divulged the fact that he had meanwhile been living at a certain hospital as an "out patient," at an expense of $8 a week. He had become dissatisfied with the hospital attention, he said, and, pretending great improvement, was permitted to get about out-of-doors.

3. A man on whom I operated and who paid me my full fee without argument or question, came to me directly from one of our large hospitals, where he had been sojourning for several months. That medical men in hospitals are imposed on is a trite observation. So long, however, as it appears to be the doctor's advantage to be on a hospital staff, plenty of men will be found who will be glad of the chance. As for the injury which the system inflicts on the profession at large, that is no argument with the individual. Human nature operates here as elsewhere. Knowing that the system is bad, we are all anxious to become victims.

In recommending the payment of salaries to hospital men, a recent editorial[2] claimed that such a plan will remedy all the evils incident to the professional side of hospital management. I do not agree in the opinion that the payment of salaries to the staffs of institutions for the care of the sick will alone correct the evils of such institutions. The writer of the aforesaid editorial is incorrect, also, when he says that an awakening is at hand. No, not at hand; it is coming though; the handwriting is on the wall. When the revolution does come, this is what will happen: 1. Hospital physicians and surgeons will be paid salaries. 2. Hospitals will take as free patients or patients who pay the hospital alone only such persons as rigid investigation has shown to be indigent. All others will be compelled to pay their medical attendants just as in private practice. 3. Certificates of indigency will be required of every free patient, such certificate being signed by the patient's attending physician—outside of the hospital—and at least two other persons in the community where he or she resides. 4. General and especially country practitioners will cease to deceive hospital doctors as to the circumstances of their patients. One medical man should not impose on another.

Too much trouble, eh? Well, my friends of the hospital and dispensary—for the same charges should apply to the latter—you must either take your medicine or the revolution will go farther and this is what will happen: The profession at large will boycott every man who runs a college clinic, and every hospital and dispensary man. It will fight colleges and hospitals to the bitter end.

The day is perhaps not far distant when doctors outside of colleges and hospitals will run their private practices on the co-operative plan, thus dealing a deathblow to the free clinic and dispensary. Every man of prominence will have his own private clinic and advertise it among his patients. What is fair for twenty or thirty men is fair and ethical for one. Each man can

[2] Cleveland Jour. Med., Sept. 15, 1898.

have his own hours for the poor; he can eliminate the unworthy ones and, best of all, he can refer all his deadbeat patients to his clinic. Pride may bring fees from patients to whom honesty is a thing unknown. The private hospital will run most of the public hospitals off the earth. There will be no room for anything but municipal hospitals run squarely and fairly for charity, and reputable private hospitals run frankly for pecuniary profit, in which the operation and the attendance fees are the chief factors. Such hospitals will benefit, not hurt, the profession. In passing, I wish to remark that the general practitioner will probably some day cease sending cases to men who make a specialty of diseases of the head, trunk and extremities. The surgeon who to-day grabs an operation case brought to him by the general practitioner, and attends a case of labor in the latter's neighborhood to-morrow, is not just the man to be trusted, yet there are many such—men who persistently decline to "render unto Cæsar, those things which are Cæsar's."

MEDICAL "TIN-GODS."

One of the most vital flaws in the business sense of the general practitioner is his penchant for hero worship. He hears of the medical tin god from afar, and burns incense on the altar of his greatness. The great man pats the humble doctor on the back, calls him a good boy, and tells him just where to take all his cases. Sometimes he offers to divide fees with him.

The medical tin god is truly a "self-made man in love with his maker." He has "genius stamped upon his brow—writ there by himself." His evolution is interesting. It is history repeating itself: Apsethus the Libyan wished to become a god. Despairing of doing so, he did the next best thing—he made people believe he was a god. He captured a large number of parrots in the Libyan forests, and confined them in cages. Day after day he taught them to repeat, "Apsethus the Libyan is a god," over and over again. The parrots' lesson learned, Apsethus set them free. They flew far away, even into Greece. And people coming to view the strange birds, heard them say, "Apsethus, the Libyan, is a god; Apsethus, the Libyan, is a god." And the people cried "Apsethus, the Libyan, is a god; let us worship Apsethus, the Libyan." Thus was founded the first post-graduate school.

The medical Apsethus and the deluded parrots of the medical rank and file are here, and here to stay, until both are starved out. And the modest general practitioner looks up to the medical tin god and wonders "upon what meat does this our Cæsar feed that he hath grown so great?" The meat of industry? Perhaps. The meat of prodigious cerebral development? Seldom. The meat of opportunity? Yea, yea, my struggling brother, "and the devil take the hindmost." But, more than all, he hath fed on the meat that the parrots have brought him—Elijah's ravens were not a circumstance to those parrots. "In the kingdom of the blind, the one-eyed man is king." How long will the general practitioner continue to play parrot to the medical tin god of the charitable hospital, the very existence of which is a menace to the best interests of the profession—the profession for which the institution has no charity? In that happy time to be, there will be no tin gods. There will be a more equable division of work, and every prosperous community will have its up-to-date private hospitals with up-to-date men at the head of them. As for the post-graduate teacher—good or bad—he is already defeating his own ends—he is exciting ambitions in the breasts of his pupils. Here and there among them is an embryo McDowell, a Sims, or a Battey. The backwoods country produces good rich blood and virile brains. And the Sims, and McDowells, and Batteys of the future will be found in relatively small places, doing good work, and then—good-bye to the tin god and his horn, "for whosoever bloweth not his own horn, the same shall not be blown." And in that day the parrot shall evolve into an eagle, and the hawk had best have an eye to windward. Meanwhile, hurrah for the post-graduate school and its pupils, and more power to the tin gods.

SUPERABUNDANCE OF MEDICAL COLLEGES.

This business handicap is so self-evident that it is hardly necessary to touch on it. We raise the standard of medical education year by year, yet the mushroom colleges do not go—they are here to stay. If one-half the colleges were wiped out of existence, there would still be more than enough to supply the demand for physicians. We have done the best we could to breed competition by manufacturing doctors, and we are doing all we can to make that competition first-class—a queer business proposition in force of the oversupply of doctors. We are unjust, too, to the men we educate, by offering them inducements to enter an already overcrowded profession—but as long as human nature is as it is, I see no way out of the dilemma. This much is to be said of the medical profession, viz., no other profession has had such obstacles thrown in its upward path to a higher education as ours. It is easier for a college of "osteopathy," "vitopathy," "Christian Science" or any other quackpathy to get recognized by state legislatures than it is for regular medicine to get a hearing even on matters pertaining to public health. We are not business-like, and the public is not with us. We do not buy legislation and, I hope, never will; so the lawmakers are not with us.

INCONSISTENCIES AND ABSURDITIES OF ETHICS.

There was once a time when it appeared a goodly thing for the chosen few to get together like the "three tailors of Tooley street," and, after establishing to their own satisfaction the fact that they were indeed "the people," formulate rules for the guidance of the many. These rules were called "ethics." And the profession has been wrestling with its ethics ever since, trying to determine what it was all about, anyhow. The ethical garment of half a century ago no longer fits—it is frayed and fringed, and baggy at the knees; full many a patch has been sewed on it, in individual attempts to make it fit from year to year, until it is now, like the Irishman's hat, respectable by age and sentimental association only. And the public, the ever practical and heartless public, has also wondered what 'twas all about, and exhibits little sympathy for a profession which, while driveling of ethics, has "strained at gnats and swallowed camels." Who does not remember when all the wiseacres with number eighteen collars and number five hats, seriously discussed the relative propriety of "Specialty" vs. Practice Limited," on professional cards? How times have changed. And then came the discussion by a learned society, of the ethical relations of "Oculist and Aurist" to "Practice Limited to Diseases of the Eye and Ear." And it was decided that men who had the former on their cards were not ethical and could not enter that society. Ye Gods! Is the fool-killer always on a vacation? Must we always see those long ears waving over the top of the ethical fence, built by the fat hogs to keep all the little pigs out of the clover patch? What is the public to think of a profession that winks its other eye at the man who prints on his cards "Diseases of Women Only," but rolls up its eyes like a dying rabbit at the

sight of a card reading "Diseases of Men Only?" What has raised the woman with leucorrhea to a more exalted plane than that occupied by a man with prostatorrhea, does not appear. Why so many inconsistencies, and why such hypocrisy! Sir Astley Cooper had his own private "hours for the poor." Our European brethren print their college and hospital positions and all their titles on their cards. Are they less ethical than we? Homeopathy is a dead duck over there, and quackery has a hard row to hoe in Europe—queer, isn't it?

Our system of ethics has not only been hypocritic, but somewhat confusing. The young man on the threshold of medicine doesn't know "where he is at." He is confronted by the unwritten law that only celebrated men and quacks may advertise. Small fry, who haven't the ear of the newspapers nor a chance for a college position, are tacitly ordered to keep their hands off. And the young fellow watches the career of the big man, who hides every other man's light under his own bushel, and marvels much. Especially does he marvel at the accurate photographs, life histories and clinical reports of his more fortunate confrères that appear in the newspapers without their knowledge. Experiences differ. I haven't yet got around to newspaper clinical reports, but it has been my fortune to be "written up" on several occasions. I do not recall that the newspapers drew on their imaginations for my photograph. I wish I might think so, and that their imaginations were distorted—the result was so uncomplimentary. So far as I can learn, nobody protests against being legitimately represented in the newspapers. Why not be honest about it? The hypocrisy of some men is sickening. Paying clandestinely for newspaper write-ups is despicable, yet some of the very men who protest that they "really don't see how that could have gotten into the papers" have paid for the advertising in good "coin of the realm." It is queer that the newspapers should write up the most minute details of the wonderful exploits of some poor fellows, together with their family histories, and publish their photographs, without their knowledge or consent—especially queer when we read in conclusion that "Professor John Doe is the greatest surgeon that ever lived." Why not come out and acknowledge that these are paid for? This would give an equal chance to all, and especially to young fellows who have money enough to pay for similar things. He who has not the price should not find fault with the fellow who has, for, "business is business." Meanwhile my young friends, remember that "big mountains may do what little mountains may not do."

When Koch's tuberculin was yet new, soon after it escaped, half-fledged, from the laboratory, only to be captured and made to perform like a trick monkey for the benefit of the laity, there came a ring at the "phone" of a prominent daily paper: "Hello, is that the *Daily Bazoo?*" "Huh, huh, it are." "Well, I'm Dr. Squirtem Galls. I wish you would send a reporter over here at once. I want to be interviewed on Koch's tuberculin." It is said that $25 changed hands, but I don't believe it. The gentleman would never advertise—at that rate—"no sir-ree." My informant was once the sporting editor of the *War Cry*, and hence unworthy of credence.

And what wonderful contributions the newspaper-great-men are making to science! The daily paper is the place to study appendicitis and things. It is not long since I learned from a distinguished surgeon friend of mine, via a daily paper, that evidence of a blow having been received on the head is an imperative indication for craniectomy, whether symptoms are present or not.

In preference to the clandestine methods now in vogue, would it not be better for men of authority to write signed articles for the newspapers and intelligently present medical matter to the public. But that wouldn't be ethical, would it? Such topics as "Advice to Young Men," "Letters to Young Wives," and "How to Keep Healthy," must be left to the quacks. We will confine ourselves to the surreptitious blowing of surgical horns and never mind the false notes. Meanwhile, let us stand back and watch the procession of modest men who never advertise—oh, no! At the head, with haughty mien, comes Professor Keene Carver, preceded by a herald in blood-red garb, blowing a large brass horn. Then comes the "bearded lady," whose blonde and breezy whiskers so delight the hearts of his swell society *clientèle*. He's a homeopath; you can depend on it. And here comes Rip Van Winkle—a middle-of-the-road "eclectic," gathering up his long and weedy beard to keep it from getting tangled up in the scientific barbed wire fence along the route. And here comes another sure-enough "regular," evidently a medicine man—so rare now-a-days. He is riding in a swell turnout and is on his way to his clinic. How do I know that Professor Windy Bowels is a regular? Because the gentleman who is riding beside him to his clinic is a reporter on the Chicago *Daily Jib-boom*.

I presume that the suggestion that I have made of the advisability of taking the public frankly into our confidence and giving it accurate information so far as its comprehension goes by signed articles in preference to clandestine advertising and the promulgation of fallacious ideas of medicine and surgery, will meet with bitter opposition. I nevertheless believe that a better education of the public is the only way to down quackery. The opposition will come chiefly from the surreptitious advertiser, who sees a prospect of other men getting the advertisement that he believes to be his proprietary right. Then there is the tribe of the Microcephali. The howl of protest will be long and loud from the pews occupied by these far-famed champions of medical orthodoxy. "We wouldn't put *our* discoveries or contributions in the newspapers—not ever." And gazing at their lemur-like front elevations we can well believe that they would have no trouble in establishing a "halibi."

Apropos of "discoveries," it may as well be understood that the public is bound to get the details of them sooner or later, and, when the time is ripe, the matter should be presented to it in a clear and intelligible form—comprehensible to the layman. The time is never ripe until the medical profession has weighed the discovery in the balance and rendered its final verdict on its merits. Taking the public into our confidence prematurely is bad business, and has always proved a boomerang.

(To be continued.)

CARE OF CONSUMPTIVES.—Among the good things said at the last meeting of the Medical Society of the State of New York, one of the best came from Dr. John H. Pryor of Buffalo, who illuminated the economic aspect of state cure of consumptives in these words: "What we ask for is that the consumptive shall be taken care of at the right place and at the right time until he is well, and not at the wrong place and at the wrong time until he is dead." It is merely a question of whether we shall pay early or late. The consumptive is a public charge. We can admit the obligation early and make terms, or we can postpone payment until judgment by default is entered, covering every item of the account.—*Md. Med. Jour.*

ARGUMENT AGAINST SENATE BILL 34, FIFTY-SIXTH CONGRESS, FIRST SESSION, GENERALLY KNOWN AS THE "ANTIVIVISECTION BILL."

BY WILLIAM H. WELCH, M.D.
PROFESSOR OF PATHOLOGY, JOHNS HOPKINS UNIVERSITY.
BALTIMORE, MD.

(Continued from page 1244.)

Who are to be subjected to the visits and inspection of these officials? It can be confidently asserted that the inspection will be practically limited to laboratories under the supervision of scientific men of established reputation, who have been selected by universities, medical colleges and heads of government departments for their recognized skill and knowledge. Dr. Bowditch has told you that he knows of no private vivisections by students, and I can say the same. Vivisection by physicians in their homes is very uncommon. The men who, as your chairman said on a previous occasion, do not need legal enactments are precisely the ones who are to be subjected to the annoyances of this system of inspection and in general to the vexatious restrictions of this bill, while, if the class of persons for whom this bill is said to have been framed really exist and now keep effectually concealed without any apparent motive, I do not see how this law is likely to reach them after their detection will lead to the infliction of a severe penalty.

Not only are the inspectors to make reports of the results of their observations which shall be published by the President of the United States, but "the Commissioners of the District shall direct every person performing experiments under this Act to make reports to them on the first day of January and July of each year, of the methods employed, the number and species of animals used, and the results of their experiments, in such form and with such further details as the said Commissioners may require: Provided only, That reports of any series of experiments alleged to be incomplete may be postponed by permission of said Commissioners for a period not exceeding six months. All such reports shall be published." (Sec. 5.)

Inasmuch as the new bill begins, after the enacting clause, with these words: "That hereafter no person shall perform on a living animal any experiment calculated to give pain to such animal, except subject to the restrictions hereinafter prescribed," it would appear that this latter provision regarding reports of experiments and their publication applies to experiments on invertebrates as well as vertebrates, for I know of no reason to suppose that an invertebrate may not suffer pain.

The period of six months allowed for the completion of experimental researches before the necessity of furnishing for publication reports thereon in whatever form and detail the commissioners require is so short that an experimenter will often be subjected to the hardship of either closing an investigation without satisfactorily completing it or of submitting to the outrage of having methods and results of half finished investigations spread before the public. It must be difficult for those unfamiliar with the conditions of scientific inquiry to fully appreciate these hardships. This requirement can not fail to injure the quality of scientific work and there are many useful investigations which would probably not be undertaken at all under such vexatious conditions. It is to be noted that in the previous bill the demand for reports on experiments was left to the discretion of the commissioners, whereas now these reports must be sent in at stated times and not in such form and with such details as the experimenter may wish, but in any form and with any details which the commissioners may require. Here, as with so many other provisions of this bill, the law can be so administered as to harass experimenters almost beyond endurance.

Those unacquainted with the real purposes and the methods of antivivisectionists would probably not anticipate one of the uses to which can be put the official records of licenses and certificates and the reports of experiments, but it is interesting to note that Sir John Simon, the most eminent of English sanitarians, formerly medical officer of Her Majesty's Privy Council, in his testimony in 1875, before the Royal Commission on Vivisection, clearly predicted this use or rather abuse. In replying to questions as to his opinion of a law embodying this system of licenses, inspection and official returns of experiments, he said (Report of the Royal Commission, etc., p. 77, London, 1876): "I think it would not be a security for animals, and I think it would give facilities for the persecution of physiologists. I think that physiologists under law of this sort would in these days run some risk of being treated as Vesalius was three centuries ago. . . . I should be very unwilling, I confess, to see physiologists put in a position in which those who are now making clamour on these subjects should be able to hold them up individually to popular odium; and under this clause" (i.e., that relating to official returns of experiments) "that could be done." I have here the second edition of a book entitled "The British Vivisectors' Directory; A Black Book for the United Kingdom," By Benjamin Bryan, with a Preface by Frances Power Cobbe, London, 1890. One sentence from Miss Cobbe's preface will serve to indicate that a main purpose of this book is to blacklist experimenters. In speaking of experimenters on animals she says: "Could the older non-scientific men and the tender-hearted women with whom they associate behold for one moment in some magic mirror, their employment of a few hours before over their torture troughs, they would be shunned and abhorred as unfit to belong to civilized society." The book is accompanied with comments full of misrepresentations and sometimes with gross misstatements of facts.[1] It is for you to consider whether you will place in the hands of antivivisectionists the opportunity to issue such appeals as this to elderly non-scientific men and tender-hearted women to ostracize a list of physiologists, whose names and experiments appear, accompanied by false and misleading statements, in a printed catalogue. It matters not that the list of names is in fact a roll of honor.

I desire to call attention, with especial emphasis, to a question about which more diversity of opinion has been expressed than concerning any other aspect of this bill. Will this bill, if it becomes law, prohibit important and useful experiments? Its advocates are vehement in their assertion that it is simply "restrictive and not prohibitive" and "concedes everything of utility," and they charge its opponents, who claim that the bill prohibits useful experiments, with misrepresentation or with ignorance of its provisions. The bill has been printed repeatedly in medical journals of this country, and has been fully discussed there. The accusation is unwarranted that protests against its enactment, which have been sent in hundreds to senators and representatives in Congress, by medical and scientific men and societies, are based on ignorance of the contents of the bill. There can be no doubt as to which side is the more competent to give a correct response to this question, the great body of medical and scientific men who answer it affirmatively, or those practically unfamiliar with animal experimentation and with physiology and medicine, who represent the negative.

I have already pointed out that this bill leaves it entirely to the discretion of two laymen, who constitute the majority of the District Commissioners, and who can not be shown to possess any special qualifications to judge of the matter, to determine whether any experiments on warm-blooded animals shall be performed in the District of Columbia. I need not recur here to the partial exemption of officers of the Government from the control of the District Commissioners. I have also shown how the numerous restrictions, such as the quadruply endorsed applications, the licenses, the registrations of places, the inspections, the requirement at stated periods of reports of methods, number and species of animals used, and results, the specifications as to purposes and conduct of experiments, place it entirely within the power of the administrators of the law seriously to hamper, and indeed actually to prevent, experimental investigations while nominally permitting them.

But aside from these prohibitive effects dependent on the manner of enforcement of the law, this bill in unmistakable terms expressly prohibits many important and useful experiments. The carelessness of construction and the vagueness, whether accidental or intentional, of certain provisions of the bill leave it uncertain whether some other useful experiments are forbidden or not.

[1] An illustration of the way in which antivivisectionists misrepresent facts is furnished by a book entitled "The Nine Circles," which has the name of Miss Cobbe on its title-page, and for which she wrote the preface. At the Church Congress at Folkstone, October, 1892, Mr. Horsely called attention to this book in the following words: "In the book, all the experiments are grouped by Miss Cobbe as English and Foreign, respectively. I have taken the trouble to collect, from this gospel of Bishop Barry and Canon Wilberforce, all the experiments in which cutting operations are described as having been performed by English scientists, and in which I knew anesthetics to have been employed. These experiments are twenty-six in number. In all of them, chloroform, ether, or other anesthetic agent, was employed. But of these twenty-six cases, Miss Cobbe does not mention this fact at all in twenty, and only states it without qualification in two out of the remaining six. When we inquire into the twenty omissions in the twenty-six cases, we find in the original that again and again Miss Cobbe has, in making her extracts, had directly under her eyes the words 'chloroform,' 'ether,' 'etherized,' 'chloroformed' 'anesthetized,' during every experiment the animal has been deeply under an anesthetic,' and so forth." (*The Standard*, London, Oct. 7, 1892). Miss Cobbe subsequently explained that the book was "planned and compiled by her direction," but the actual work of compilation was done by another.

The only experiments on warm-blooded animals permitted by this act are those for "the advancement of physiological knowledge or of knowledge which will be useful for saving or prolonging life or alleviating suffering" or for "the acquirement of surgical experience likely to be of use in operations upon human beings" (Section 2, *a*), in which experiments "the animal must, during the whole of the experiment, be completely under the influence of ether or chloroform (or any other recognized anesthetic)," (Section 2, *c*). There are six, and only six, exceptions to these requirements, to-wit: 1. "Experiments may be performed under the foregoing provisions as to the use of anesthetics by a person giving illustrations of lectures in medical schools or colleges, on a certificate being given, such as is required for a license as hereinafter provided in section seven, to the effect that the proposed experiments are absolutely necssary for the due instruction of the persons to whom such lectures are given, with a view to their acquiring knowledge or experience which will be useful to them for saving or prolonging life or alleviating suffering;" 2, "in so-called inoculation experiments or 3, tests of drugs or medicines, or 4, foods, or 5, in experiments relating to the communicability of disease, the animal need not be anesthetized nor killed afterwards, nor 6, in tests of surgical procedure need animals be kept completely anesthetized during the process of recovery from the surgical operation." (Section 2, *c*.)

I can not claim familiarity with all of the antivivisection bills which have been introduced into legislative bodies. I know that many are very curious productions, but I should be surprised to learn that there are any, stopping short of total prohibition, which have been more prohibitive in their provisions than this so-called "moderate and reasonable" bill before us. Who was it that, in copying the phrases of this bill from the British act, struck out bodily the three provisions in the latter, absolutely essential for the continuance of experimental work in its legitimate scope, granting permission, when the necessities of the investigations demanded: 1, for the performance of experiments without anesthetics; 2, for the survival of the animal after the operative part of the experiment, and 3, for the performance of experiments "for the purpose of testing a particular former discovery alleged to have been made?" Was it some one who tells us that this bill "goes to the farthest extreme of concession in the anxiety of its framers to yield to the wishes of scientific men so far as may be consistent with the principle of legal supervision?" Does anybody suppose that the exceptions concerning inoculation experiments, tests of drugs, medicines, or foods, experiments relating to the communicability of disease, and tests of surgical procedure can begin to take the place of all the experiments forbidden by the omission of the provisions mentioned? Misapprehension there may have been as to the effects of this bill, but it has not been on the side of those who have emphasized its prohibitive features.

I could spend the entire time allotted to me in enumerating useful experiments absolutely prohibited by this bill, but it must suffice to call attention to a few of the more important classes of prohibited experiments.

No scientific man who reads this bill and notes the definitions of the purposes for which experiments are permitted and the enumeration of the few kinds of experiments excepted from certain prohibitions can fail to be impressed with the fact that the whole emphasis is laid on immediate practical utility. The framers of the bill had evidently no broader conception of science than that short-sighted Philistine one which sees no value in scientific discoveries unless they be of immediate practical application. They seem not to know that the foundations of applied science rest on discoveries in pure science made without thought of direct practical utility. Experiments made solely with a view of advancing physiologic and pathologic knowledge without immediate reference to their practical applications are precisely the ones which have yielded the richest harvest of results applicable to the diagnosis and treatment of disease. Such was the history of the discoveries of antitoxin, of the principles of antiseptic surgery, of the treatment of myxedema and cretinism by thyroid extracts, and of many other therapeutic and diagnostic procedures based on the results of animal experimentation.

Instead of some simple and comprehensive definition of the purposes for which experiments can be made, such as "for advancement of medical and biological knowledge and promotion of the healing art," we find the clumsy, unsatisfactory and vague phraseology already cited from Section 2, *a*. The only instance in the entire bill of the recognition of any other immediate purpose of experimentation than one relating to the treatment of disease is the permission granted in this paragraph to perform experiments "with a view to the advancement of physiological knowledge." The latest bill has even removed the word "physiological," found in all the previous bills, for the designation of one of the kinds of knowledge for the acquirement of which by students demonstrative experiments may be made in illustration of lectures. It is not customary to designate by the epithet "physiological" the kind of knowledge sought for in pathologic and bacteriologic experiments, and nevertheless, by no means all of these experiments are made for the purpose of acquiring knowledge directly "useful for saving or prolonging life or alleviating suffering." There is a science of pathology as well as of physiology. Together they make the foundation of scientific medicine. Each is most surely advanced by its cultivation for its own sake. The ultimate purpose of obtaining knowledge useful to practicing physicians and surgeons is far more likely to be secured by the experimental work of those experts who devote themselves to physiology and pathology as sciences than by experiments made with direct reference to their application to the treatment of disease. It is difficult to say whether the term "physiological" will be interpreted by the administrators of the proposed law in some broad unusual sense so as to include all pathologic, bacteriologic, hygienic and chemical experiments not performed for the immediate purpose of advancing knowledge "useful for saving or prolonging life or alleviating suffering." Certainly no such vagueness and doubt as to the interpretation of the law should have been permitted as regards these important classes of experiments.

The bill provides that the animal must be completely anesthetized during the whole of the experiments and, if the pain is likely to continue or any serious injury has been inflicted, must be killed before recovery from the influence of the anesthetic. (Section 2 *c*.) The previous bills contained the ridiculous requirement that only ether and chloroform could be used as anesthetics, whereas in the last bill permission is parenthetically granted to use "any other recognized anesthetic." Those acquainted with antivivisectionist writings must have observed the absurd notions contained therein regarding the distinction between anesthetics and narcotics, so far as the production of insensibility to pain is concerned. It is there stated that such narcotics as morphia and chloral, which on account of their prolonged narcotic effects are often useful and most merciful in animal experiments, do not even in large doses render animals insensible to pain. The so-called narcotics are administered to animals in doses relatively much larger than for human beings and in ways securing prompter effects, but to the antivivisectionist none of these is a "recognized anesthetic." I apprehend that the present phraseology of this bill is calculated to leave it to the decision of the Commissioners of the District of Columbia whether the use of certain narcotic substances, although in fact capable of producing insensibility to pain, shall be permitted in animal experimentation. Doubtless the judgment of this tribunal on this question will be eagerly awaited by the medical world. Anesthetics and narcotics differ among themselves in their effects on the circulation, respiration and other functions, and, while ether and chloroform are the most generally useful, the exigencies of a research may require the employment now of one and now of another without introducing any difference in the completeness of the insensibility to pain.

The use of curare as an anesthetic is forbidden by this bill. Curare is not in fact used as an anesthetic by physiologists, but it hardly seems necessary for Congress to pronounce on the question of its anesthetic properties. Bernard, who believed that curare does not produce insensibility to pain and whose theatrical description on this subject is extensively quoted in antivivisectionist literature, correctly stated, in the following words, the only way in which this question can be decided: "Man alone, after recovering from poisoning by curare, could tell, supposing that he preserved his memory, whether or not he had suffered." Since Bernard's experiments, over forty years ago, other experiments have been made, some of which show that curare in the doses used in the laboratory acts on the sensory as well as the motor nerves, and, what is most pertinent to the question, there have been instances reported of the accidental poisoning of men by curare, who recovered and in whom sensation was totally abolished, while the action of the drug was apparent. (Stephen Paget: Experiments on Animals, pp. 243-245. London, 1900.)

There are painful experiments, fortunately very exceptional ones, in which the objects of the experiment would be frustrated by the use of an anesthetic. Such experiments are permitted under certificates by the British law, but are prohibited by this bill—excepting inoculation experiments, tests of drugs, medicines or foods, and experiments relating to the communicability of disease. When one considers that the

discovery of the separate functions of the spinal nerve roots, probably the most fundamental discovery in physiology next to that of the circulation of the blood, is based on experiments under this category, the possible injury to science which may result from the absolute prohibition of this class of experiments is sufficiently apparent.

Perhaps the largest and most important class of useful experiments prohibited by this bill comprises those in which the purposes of the investigation require the survival of the animal for periods of time too long for the practicable continuance of the anesthesia. Nothing in this bill is more curious or more characteristic of the ignorance of its framers in scientific and medical matters than the little list of cases in which it is permitted to dispense with an anesthetic or to allow the animal to recover from the influence of the anesthetic before killing it. To the three exceptions which permit the survival of the animal, enumerated in previous bills, the present bill has added "tests of foods" and "experiments relating to the communicability of disease." The expression, "tests of drugs, medicines or foods," is certainly a very peculiar and, at least to members of the regular profession, unfamiliar designation of investigations in pharmacology and nutrition. It is hard to see why "tests" of other therapeutic procedures than those of drugs, medicines and foods should be excluded from this list, but I suppose that we ought to be grateful for this new concession that animals need not be anesthetized or immediately killed while feeding them during these "tests of foods."

It is difficult to see what of importance is added to this meager list by the insertion, in the new bill, of "experiments relating to the communicability of disease." A communicable disease is of course a contagious disease, and there do not occur to me any important experiments relating to its communicability which do not come under the already permitted class of "inoculation experiments." But if experiments permitting the survival of the animal may be made with reference to the "communicability of disease" why in the name of common sense may they not be made with reference to the study of the causation, the diagnosis, the prognosis, the pathology of disease?

It will be noticed that this singular little group of experiments which constitute the only ones in which the animal is permitted to survive the influence of the anesthetic are all experiments supposed to be of immediate practical utility, although they represent only a very small fraction of such experiments, most of which have just as much claim to be included as those which actually appear in the list. I have already indicated the fundamental error of conception, nowhere, in this remarkable bill, more strikingly manifested than here, which attributes supreme importance to experiments conducted with a view to their immediate, practical application to the treatment of disease.

With the five exceptions—inoculation experiments, test of drugs or medicines, tests of foods, tests of surgical procedure, experiments relating to the communicability of disease—all physiologic and pathologic experiments in which the ends of the experiment can be attained only by observation of the animal for days or weeks are prohibited by this bill. Such important experiments as those which have shed light on the processes of digestion by gastric, biliary, pancreatic or intestinal fistula, on the functions and sounds of the heart by the experimental production of valvular lesions, on the functions of the brain and spinal cord, of the kidneys, of the thyroid gland, of the liver and, indeed, of most of the organs of the body by observations extending over some length of time after an experiment, are all prohibited by the conditions of experimentation imposed by this bill. The list of prohibited experiments of this class is so long that I can not attempt to enumerate them. It has been asked whether the experiments on the brain and on the liver, cited by Dr. Keen as the basis for his successful operations, could not be performed under the provisions of this bill. They could not, for they required the survival of the animal after an operation inflicting serious injury, and they were not undertaken as tests of a surgical procedure or with reference to the communicability of disease, but for purely physiologic and pathologic purposes. Nor does this bill permit such experiments as those cited by Dr. Hare, which have led to the successful treatment of myxedema and forms of cretinism. If this bill included no more than the provision forbidding the performance of this class of experiments its enactment would inflict a blow, simply brutal, on biologic and medical science. It is conceivable that the framers of the bill did not know what they were doing when they inserted this prohibitive feature, but that surely does not put the matter in any better light.

It does not seem to me necessary, nor in the limited time is it practicable, to continue with an enumeration of all the useful classes of experiments prohibited by this bill. To some others I have called attention in Senate Document No. 104, 55th Congress, Second Session, but no one has ever attempted anything approaching a complete list of the prohibited experiments. I may here say that it is not clear to me what is meant by the assertion repeatedly made by advocates of the bill, that inoculation experiments are excluded from its operation. They are subject just as much as any other experiments to all its restrictions except that the animal need not be anesthetized during the operation or killed afterward. The magnitude of the concession that an animal—a mouse is the one oftenest used—need not be anesthetized for the prick of a needle or kept unconscious for days or weeks seems to have made an extraordinary impression on the supporters of this bill. Enough has been said to demonstrate that this bill explicitly prohibits many experiments of the highest scientific and practical value, including many which involve less suffering to the animal than some that are permitted. These unambiguous prohibitive features of the bill have been pointed out again and again in published documents but I have never seen any answer vouchsafed to these apparently weighty criticisms, nor do I expect to hear any to-day.

One of the speakers on the other side devoted a large part of his remarks to the subject of vivisection in public schools. The only reply which seems necessary is that the existing law permits only "properly conducted scientific experiments or investigations, which experiments shall be performed only under the authority of the faculty of some regularly incorporated medical college, university or scientific society," and that the Superintendent of Public Schools, on April 24, 1896, wrote, "Vivisection has never been practiced in the schools of the District of Columbia, so far as I have been able to ascertain after the most diligent inquiry. No legislation is necessary on this subject, because the authorities of the schools are radically opposed to vivisection except by experts for scientific purposes, and will do everything in their power, without legislation, to prevent its occurrence in the public schools."

One of the most irrational features of the previous bills has apparently been eliminated from the new or substitute bill printed on March 9, 1900, through the substitution of the words "warm-blooded" for "vertebrate," but there seems to have been some carelessness in carrying out this correction. In Sections 7 and 8 the license under the act is spoken of as one "for the performance of experiments on living animals," and I have already mentioned that Section 3 requires that "every place for the performance of experiments upon living animals" shall be approved and registered. There is also apparently some uncertainty on this point in Section 5. It is charitable to suppose that these slips and uncertainties are not intentional, but if due care had been exercised they would not have appeared.

In looking over the British law on this subject I was impressed by the following provision which would seem to afford experimenters considerable protection against persecution: "A prosecution under this Act against a licensed person shall not be instituted except with the assent in writing of the Secretary of State" (the authority administering this law). I am not a lawyer and can not say whether the omission of a similar safeguard from the present bill is based on legal grounds, but if not, then I do not care to comment on the motives of those who copied so much of the British law and left out this valuable protection to physiologists against unjust and malicious prosecutions.

Although I have not by any means exhausted the objections to this legislation, and have left untouched a number of just criticisms on it, already presented in various public documents, I see no necessity of occupying more time in a discussion of other objectionable provisions, after the hopelessly defective character of the bill has once been made sufficiently clear. I trust that it has been demonstrated to the satisfaction of the members of this Committee that no further legislation on this subject is necessary; that this law, in attempting to restrain abuses, of whose existence there is no evidence, would do far more harm than by any possibility good, by seriously hampering the work of scientific investigators; that many of the leading provisions of the bill are monstrously wrong in principle and would be most detrimental in practice to the interests of medicine and biologic science; that the proposed law is capable of being administered so as to prevent all animal experimentation, and does in fact explicitly prohibit a large number of important and useful experiments.

Before closing I should like to advert to two points which

are pertinent to the discussion of this sort of legislation, viz.: its inequality and the experience with similar legislation in Great Britain.

The fact that legislation is class legislation is, I know, not decisive as to its propriety, but it does raise a prejudice, often a justifiable one, against it. Sir John Simon, in his testimony before the Royal Commission on Vivisection, forcibly presented the unequal character of such legislation as that contemplated in this bill. He said:

> You must take this question of physiology with the general social context; and I do this as impartially as I can when I think of projects of legislation in the present matter. I take up, for instance, one of these Bills, and I find this: "Whereas, it is expedient to prevent cruelty and abuse in the *experiments made on living animals for the purpose of promoting discoveries in the sciences of medicine, surgery, and physiology.*" . . . Do you suppose that one of Magendie's experiments, the worst of them, is more cruel to the sufferer of it than hare hunting to the individual hare, or fox-hunting to the individual fox? And is animal life less to be protected against "cruelty" when the life is sacrificed for purposes of science? You are proposing that physiologists shall be treated as a dangerous class, that they shall be licensed and regulated like publicans and prostitutes; what I would venture to put before you is, that this would be fancy-legislation, touching the relations of man to the lower animals at a little bit, and a comparatively unimportant little bit, of the subject-matter; and that society would come to such legislation with unclean hands. Who is the accuser of the physiologist? Society assumes a universal right to slaughter animals for its food, to cut their throats and wring their necks at its discretion, and neither stints its luxury (much less its hunger) in reluctance to take life, nor troubles itself much about painless methods of killing. To kill particular animals in particular ways is a considerable branch of national amusement, and the wealthy breed certain animals on a large scale exclusively to have sport in killing them, and for the unpractised often to mangle where they do not kill. Also with a view to slaughter, or with a view to other service, society inflicts sexual mutilation on nearly all the males of the cattle, horses, sheep and swine, which it controls, and, as to swine, on many of the females. You never eat a mutton chop that does not come from an emasculated sheep; you rarely use a male horse that has not had its testicles cut out. Now, when the common habit of society treats domestic animals in this way, slaughtering and mutilating them at its will for use, for convenience, for luxury, and while battues and wager-slaughtering and hare-hunting are elements of national sport, it seems altogether monstrous to put into a separate category the extremely small use which physiology (for great human interests) makes of the lives of brute animals, and to have as the preamble of a bill that cruelty is to be prevented in that one relation while all other relations are to be left loose.

We have no opportunity to judge from actual experience of the practical results of vivisection legislation so restrictive and so unintelligent as that in this bill. The experience, however, for the last quarter century in Great Britain, the only country which has hitherto introduced legislation of this character, should be quite sufficient to warn law-makers elsewhere against the adoption of all such legislative proposals and it is the strongest incentive to scientific and medical men in other countries to resist to the utmost the imposition of similar shackles upon freedom of scientific investigation. The bill before us was copied in its main features from the British law, although, as I have pointed out, with restrictive additions and with the omission of important concessions and safeguards. The British law, although, unlike this bill, not prohibitive of any important kinds of experiment, surrounds the practice of animal experimentation with severe and harsh restrictions and has been rigorously enforced. That it has not crushed the life out of British physiology and experimental medicine is evidence of their inherent vitality and of the indomitable energy of scientific workers in that land. Of its harmful effects I shall bring testimony presently.

The law was enacted by Parliament in 1876, avowedly to satisfy public clamor, and at a period just before the beginning of modern bacteriology, which has furnished such irrefragible proofs of the benefits of animal experimentation to practical medicine. Lord Sherbrooke—then the Right Hon. Robert Lowe—has correctly characterized, in the following words, the report of the Royal Commission which was appointed to inquire into the existence of abuses of vivisection:

> The Commission entirely acquitted English physiologists of the charge of cruelty. They pronounced a well-merited eulogium on the humanity of the medical profession in England. They pointed out that medical students were extremely sensitive to the infliction of pain upon animals, and that the feeling of the public at large was penetrated by the same sentiment. They then proceeded to consider to what restrictions they should subject the humane and excellent persons in whose favor they had so decidedly reported. Their proceeding was very singular. They acquitted the accused, and sentenced them to be under the surveillance of the police for life. (*Contemporary Review*, October, 1876.)

Unfortunately physicians and scientists in England at the time made no such determined opposition against the proposed legislation as their colleagues are doing in this country in the case of the present bill. Many of them believed that acquiescence would put a stop to the mischievous agitation of antivivisectionists who, as the Royal Commission showed, had misled a considerable section of the public to credit their *ex parte* statements concerning the existence of serious abuses. In this belief our English brethren were grievously mistaken, and they have earnestly warned us not to fall into their error. This legislation has in no measure accomplished its avowed purpose to afford an antidote to unjust suspicions, nor is this failure due to any lack of rigor in the enforcement of the law. As Stephen Paget says:

> The working of the act is subjected to ceaseless espionage both inside and outside Parliament. Candidates at elections are heckled over it; bullying letters are written to Her Majesty's Ministers; scientific journals are ransacked to find evidence for "The Cause;" black-lists of men to be boycotted are published; and people are asked to give nothing to the big hospitals with schools, and everything to one or two little hospitals without schools.

As Dr. Bowditch has told you and as all familiar with their ultimate aims know, the antivivisectionists, in deference to whose wishes the British law was enacted, are not in the least satisfied with its operations and are clamoring for total prohibition. You will have no better success if you defer to their immediate desires as regards this bill, while you may be assured that its passage will encounter the hostility of the entire medical profession of this country and will inflict grievous injury on medical science and art. The truth is that this legislation is directed against a phantom, and the phantom will not be exorcised by any measure which stops short of the total prohibition of all animal experimentation, perhaps not even then.

Out of a considerable number of letters on this subject from English physicians, all to the same general purport, I have selected four on account of their weight of authority, which should convince you of the injury to scientific and practical medicine inflicted by the British law. The first letter which I shall present is from Lord Lister, president of the Royal Society, whose name is immortal in the annals of medicine, one of the greatest benefactors of mankind through his discovery and introduction of the principles of antiseptic surgery. It was written in 1898 and addressed to Dr. W. W. Keen.

LETTER OF LORD LISTER.

My Dear Sir.—I am grieved to learn that there should be even a remote chance of the legislature of any state in the Union passing a bill for regulating experiments on animals.

It is only comparatively recently in the world's history that the gross darkness of empiricism has given place to more and more scientific practice; and this result has been mainly due to experiments on living animals. It was to these that Harvey was in large measure indebted for the fundamental discovery of the circulation of the blood, and the great American triumph of general anesthesia was greatly promoted by them. Advancing knowledge has shown more and more that the bodies of the lower animals are essentially similar to our own in their intimate structure and functions; so that lessons learned from them may be applied to human pathology and treatment. If we refuse to avail ourselves of this means of acquiring increased acquaintance with the working of that marvelously complex machine, the animal body, we must either be content to remain at an absolute standstill or return to the fearful haphazard ways of testing new remedies upon human patients in the first instance which prevailed in the dark ages.

Never was there a time when the advantages that may accrue to man from investigations on the lower animals were more conspicuous than now. The enormous advances that have been made in our knowledge of the nature and treatment of disease of late years have been essentially due to work of this kind.

The importance of such investigations was fully recognized by the commissioners on whose report the Act of Parliament regulating experiments on animals in this country was passed, their object in recommending legislation being professedly only to prevent possible abuse. In reality, as one of the commissioners, the late Mr. Erichson, informed me, no single instance of such abuse having occurred in the British Islands had been brought before them at the time when I gave my evidence, and that was toward the close of their sittings. Yet in obedience to a popular outcry, the Government of the day passed an act which went much further than the recommendations of the commissioners. They had advised that the operation of the law should be restricted to experiments upon warm-blooded animals; but when the bill was considered in the House of Commons a member who was greatly respected as a politician but entirely ignorant of the subject-matter suggested that "vertebrated" should be substituted for "warm-blooded;" and this amendment was accepted by a majority as ignorant as himself.

The result is that, incredible as it may seem, anyone would now be liable to criminal prosecution in this country who should observe the circulation of the blood in a frog's foot under the microscope without having obtained a license for the experiment and unless he performed it in a specially licensed place.

It can be readily understood that such restrictions must seriously interfere with legitimate researches. Indeed, for the private practitioner they are almost prohibitive, and no one can tell how much valuable work is thus prevented.

My own first investigations of any importance were a study of the process of inflammation in the transparent web of the

frog's foot. The experiments were very numerous, and were performed at all hours of the day in my own house. I was then a young unknown practitioner; and if the present law had been in existence, it might have been difficult for me to obtain the requisite licenses; and even if I got them, it would have been impossible for me to have gone to a public laboratory to work. Yet without these early researches, which the existing law would have prevented, I could not have found my way among the perplexing difficulties which beset me in developing the antiseptic system of treatment in surgery.

In the course of my antiseptic work at a later period I frequently had recourse to experiments on animals. One of these occurs to me which yielded particularly valuable results, but which I certainly should not have done if the present law had been in force. It had reference to the behavior of a thread composed of animal tissue applied antiseptically for tying an arterial trunk. I had prepared a ligature of such material at a house where I was spending a few days at a distance from home; and it occurred to me to test it upon the carotid artery of a calf. Acting on the spur of the moment, I procured the needful animal at a neighboring market; a lay friend gave chloroform and another assisted at the operation. Four weeks later the calf was killed and its neck was sent to me. On my dissecting it the beautiful truth was revealed that the dead material of the thread, instead of being thrown off by suppuration, had been replaced, under the new aseptic conditions, by a firm ring of living fibrous tissue, the old dangers of such an operation being completely obviated.

I have referred thus to my personal experience because requested to do so; and these examples are perhaps sufficient to illustrate the impediments which the existing law places in the way of research by medical men engaged in practice, whose ideas, if developed, would often be the most fruitful in beneficent results.

Bue even those who are specialists in physiology or pathology, and have ready access to research laboratories, find their work very seriously hampered by the necessity of applying for licenses for all investigations and the difficulty and delay often encountered in obtaining them.

Our law on this subject should never have been passed and ought to be repealed. It serves no good purpose and interferes seriously with inquiries which are of paramount importance to mankind. Believe me, Sincerely yours,

LISTER.

The second letter is from the late Sir Thomas Grainger Stewart, professor of medicine in the University of Edinburgh, physician to the Queen, formerly president of the Royal College of Physicians of Edinburgh, and of the British Medical Association. The name of no British physician is more widely known and honored both in his own country and in America than that of Grainger Stewart, whose death occurred within the present month. The following letter was written in 1898.

LETTER OF SIR THOMAS GRAINGER STEWART.

My Dear Dr. Keen.—I much regret to hear that you are threatened with the kind of legislation which has in this country proved so detrimental to all branches of physiological and pathological science, and consequently to practical medicine and surgery.

It may have been true as the antivivisectionists of this country asserted, that cruelty was inflicted upon the lower animals for purposes of experiment and demonstration, but I can certainly vouch for it that I never saw anything of the kind and I have been closely connected with the work of some of our chief medical schools ever since my graduation, nearly forty years ago.

But I do know of my own experience that the laws passed in the interests of antivivisection have proved a great hindrance to original research among us—not that experiment is forbidden, for competent men can as a rule get permission. But the restrictions, the delays, the formalities that have to be gone through are so irksome as to hinder many competent men from undertaking researches, and to make it almost impossible for such workers as are actively engaged in practice to attempt elucidating research on any special occasion that emerges.

I sincerely trust that a country which loves freedom as your country does, and which has during my professional lifetime made such enormous strides in advance as your country has, will not follow ours in adopting unfair and trammelling restrictions and checking the great career which American medicine has of late years been pursuing. With much regard, I am

Yours very truly, T. GRAINGER STEWART.

The next letter, also written in 1898, is from Dr. T. Lauder Brunton, physician to St. Bartholomew's Hospital, London, a physician of great eminence, and author of the most scientific and authoritative text-book on pharmacology and therapeutics in the English language.

LETTER OF DR. T. LAUDER BRUNTON.

Dear Dr. Welch.—I regret extremely to hear that there is a movement in America to stop the progress of medicine by prohibiting experimentation upon animals. Those who have set this agitation on foot are no doubt well-meaning, but in their anxiety to prevent pain to the lower animals they are entirely forgetful of the consequences to man. It is through experimentation on animals that medicine and surgery have made such enormous strides of recent years, so that we are able to prevent the spread of infective diseases, to lessen mortality in such diseases as diphtheria, to relieve pain and induce sleep in ways that were unthought of thirty years ago, and to perform surgical operations on the abdomen which are now becoming so common because they are so free of risk, whereas formerly such operations entailed the almost certain death of the patient. The good-hearted, but sentimental and mischievous persons who oppose experiments upon animals forget that animals as well as men must die and that the natural end to which all these animals would come is probably much more painful than death at the hand of the physiologist. It is a want of conception of the importance of experimentation in increasing the power of the medical man to relieve pain and prevent death that causes sentimentalists to oppose it. As an illustration of this, I may mention that shortly after the antivivisection act was brought into force in England, Sir Joseph Fayrer and I were prevented from carrying on, at our own expense, experiments on the action of snake poison and the best way of preventing death from it. This was done because snakes were almost unknown in this country and death from their bite is almost unheard of. But at the very moment that we were prevented from doing the experiments here, the Government of India, knowing the importance of the research, as twenty thousand people die yearly from the bite of poisonous snakes in India, appointed their own officials, paying them salaries and providing them with all facilities to carry on the research in India which the Government at home was preventing Sir John Fayrer and me from doing at our own expense. The Indian government realized the danger of death from snake bite while the home government did not, and consequently the former forwarded the research in order to prevent the suffering and death of its subjects while the latter was prohibiting such a research. It was the ignorance of the home government which led it to do this; it was the knowledge of the Indian government which led it to act as it did.

In America, the ignorant and prejudiced will be sure to take up the antivivisection cry, while the wise and truly benevolent will oppose the bill. The passage of the antivivisection act in this country has interfered to an enormous extent with physiological work, and in order to do some of my investigations, the object of which was simply to find out what the action of certain medicines was that one might apply them to the relief of suffering mankind, I have been obliged to go to Paris to carry on my research in a foreign laboratory. It will be a great blow to the progress of the science of medicine in America if any such act is passed, because it will be much more difficult for American scientists to go to foreign countries in order to do their experiments than it is for men living in England.

I trust that the good sense of the American people will prevent any such act being passed, and I consider it the bounden duty of all American medical men who have the interests of their profession and patients at heart to oppose to the very utmost and by every means in their power the passage of any such act. Believe me Faithfully yours,

T. LAUDER BRUNTON.

The last letter is from Sir Michael Foster, member of Parliament, professor of physiology in the University of Cambridge, secretary of the Royal Society, the most distinguished physiologist of Great Britain, and one of the most distinguished in the world. No one can speak with fuller practical knowledge of the workings of the British antivivisection law than Professor Foster. The letter was written in 1890, and addressed to Professor Hodge of Clark Universrty, Worcester, Mass.

LETTER OF SIR MICHAEL FOSTER.

My Dear Sir.—It is not easy to estimate accurately the effect of the vivisection act in Great Britain. Undoubtedly during the period which has elapsed since it was passed there has been more, much more, physiological work than in the like period before the act; and on a principle not unknown to the framers of New England, viz., that persecution and difficulties engender zeal, we may look upon some of this as an unintended effect of a "penal measure"—for so the law lords spoke of it in the House of Lords when it was being passed. On the other hand, we can only conjecture what work might have been, had no act been passed. Turning to the actual experience one can say that not only great annoyance, which is a very little matter, but great delay and loss of time, which is a very serious matter, have been experienced in researches which have been allowed; and quite apart from researches which have been actually forbidden by refusal of certificates and licenses. Many researches have been abandoned or let alone which would have been undertaken had there been no act. We all work on a ticket of leave. Some work is prevented, because the opportunity for work comes suddenly, unexpectedly, and before the ticket can be got, the opportunity has passed; for, though the officials do their best, I believe, to prevent unnecessary delay, a good deal of delay can not be avoided. Again, a man undertakes a research for which he gets his ticket, but the development of his research suggests experiments not provided for in his ticket; he has to wait until his ticket is amended, or until he gets a new ticket, and while he is kicking his heels waiting for a new permission, the spirit leaves him. Again, there are some experiments, for which it is hopeless or almost hopeless to expect to get permission, and the investigator is obliged to leave his research incomplete or, if he can, go abroad and complete it. There are several instances known to me where men have gone abroad to do what is forbidden at home, and I believe that such instances are by no means uncommon. The authorities, I believe, do their best to administer the act justly, but they are laymen not understanding the nature of physiological research, and moreover are politicians, having to defend their actions in the House of Commons before a clamorous and active faction of opponents to science.

I have just said that men go out of England to do particular experiments, and undoubtedly the act prevents men staying in England or coming to England to carry on research requiring vivisection, at least of the kind requiring special certificates. For instance, I myself can in my laboratory only offer facilities for research within the limits and under the difficulties of the act. No one in his senses who could go elsewhere would come to me to do imperfectly and under the great disadvantages what he could do freely and without hindrance elsewhere. I believe that had it not been for the act, we should have had many more men coming to work in our laboratories than we have.

I have always said and always shall say that the necessity of a restrictive law has never been shown. The English Commission failed to demonstrate any abuse such as could justify the

measures adopted, and from what I know of America and Americans I am confident that no such laws are needed with you. Indeed, my objections to the act as a politician are quite as strong as my objections as a physiologist; the act is stamped with that mark of bad statesmanship, *meddlesomeness*.

The effect of such an act with you would be, I imagine, much as with us. It would not stop physiological work—it would worry it—it would prevent many important researches being made complete; it would lead men to follow out not the lines of research to which their ideas led them, but those which they could pursue without the restraints of licenses and certificates—it would, as with us, almost destroy the researches carried on by private individuals working apart from established laboratories, and would certainly largely curtail the usefulness of Clark University by increasing the tendency, which you will always have to strive against, toward the predominance of pedagogy over pure research.

The act took birth in England: 1, from the energy of *doctrinaires* of the upper middle class—the upper ten thousand had nothing to do with it—who had time and funds for public agitation, while men of science and doctors had something else to do and hated agitation; 2, because certain leaders in science and medicine, fearing the strength of the *doctrinaires*, advised a compromise—the compromise has proved to be one-sided. "The report of the commission went beyond the evidence and the bill went beyond the report;" further, some most objectionable features were added to the bill as it was being passed through Parliament at the end of a session. If the act had confined itself simply to demanding that no one should perform experiments who had not received a *general* license to do so, comparatively little harm had been done; it is the special certificates for particular kinds of experiments which give really all the trouble.

But if the time were to come over again I would fight tooth and nail against any act at all, on the ground that all such *legislative restrictions are unnecessary*, that instances of cruelty, that is, of heedless causing of pain on the part of physiologists, are, to say the least, rare, and that public opinion aided by the ordinary law is quite sufficient to cope with such cases; (I, of course, assume that vivisection is absolutely necessary for the progress of physiology). And much as I hate public agitation, I should throw myself with all the energy I possess into agitating against such measures, sacrificing my little portion of present science for the sake of science to come. My advice to you is, accept no compromise whatever, refuse to admit for a moment the need of such a law, and fight against it everywhere, in the newspapers and on the platform, and, if the situation demands it, even initiate your opponents and refuse a political vote to a candidate who will not pledge himself to vote against it. I do not think I can say anything stronger than this last. To repeal a law is a very different thing from opposing the making of one. I scarcely think that I shall live to see the repeal of our act, but if the chance of success ever offers itself I trust I should be ready to carry out for ourselves the advice which I am now giving you.

Yours very truly,

M. FOSTER.

Such are the opinions based on actual experience, of the foremost representatives of English surgery, medicine, therapeutics, and physiology, on the effects of the only antivivisection law in operation in any country, a law, moreover, bad enough but still far less repressive than that embodied in this bill. Can you wonder that biologists and physicians throughout this country are so earnest and active in their efforts to prevent the enactment of this bill? The opportunity which the introduction of this bill into Congress has afforded for an expression of the real sentiments of scientific and medical men has served to show the falsity of the assertion current in antivivisectionist writings that there is any material division of opinion in the medical profession concerning the utility of vivisection and the dangers to science inherent in this kind of legislation. I am aware that lists of doctors are reported in antivivisectionist publications purporting to show that many physicians are opposed to vivisection or approve special restrictive legislation. These lists, so far as published with any fulness, contain many names which will not bear scrutiny as to their professional standing. In the most frequently cited of these lists, that collected by the American Humane Society in 1894-95, I do not see how any right thinking person could have approved the statement headed "Vivisection without Restrictions," which is as follows:

> Vivisection, or experimentation upon living creatures, must be looked at simply as a method of studying the phenomena of Life. With it morality has nothing to do. It should be subject neither to criticism, supervision, nor restrictions of any kind. It may be used to any extent desired by any experimenter (no matter what degree of extreme or prolonged pain it may involve) for demonstration before students of the statements contained in their text-books, as an aid to memory; for confirmation of theories; for original research; or for any conceivable purpose of investigation into vital phenomena. We consider that sentiment has no place in the physiological laboratory; that animals have there no "rights" which Man is called upon to notice or respect. . . .

The comparatively small number of names signed, I must believe without due consideration, to this sorry, yes infamous, stuff is adduced by antivivisectionists as representing the proper ratio of physicians opposed to such legislative restrictions as we are considering, while the large number of those who refused to sign it is cited in support of this restrictive legislation. Could anything be more unfair?

I know no one, certainly no scientific man, who believes in vivisection unrestricted by morality, uninfluenced by judicious criticism and public opinion, without competent supervision, without regard for a serious purpose in making the experiment, without due care in the avoidance of unnecessary suffering, and without subjection to the statute law relating in general to the prevention of cruelty to animals. These are the restrictions which should and do control the practice of animal experimentation. No further legislation is needed to secure them, and no special legislation regulative of this practice has ever been suggested, which would not seriously interfere with useful and proper experimentation and, therefore, prove detrimental to the interests of medical science and art.

Surprise has been expressed that scientific men and the great body of the medical profession in all parts of this country should concern themselves so actively with contemplated legislation which in its immediate effects relates to a very limited area and affects directly the work of probably not more than a dozen men, if indeed of that number. Our solicitude to prevent the passage of this act is not greater than that of antivivisectionists throughout the country to secure it. Our opponents have hitherto signally failed in their repeated efforts to obtain the enactment of similar laws in the various states. They now seek Congressional sanction in the hope that it will promote their "Cause" throughout the country. We know, and scientific and medical men alone can fully know, the dangers to science and humanity which lurk in what may seem to some of you this unimportant bit of legislation. The medical and biologic sciences have advanced in these later years with strides unapproached and in directions undreamed of but a quarter of a century ago. New vistas of knowledge and power have been disclosed, the full fruits of which will be gathered by coming generations. The main cause of this unparalleled progress in physiology, pathology, medicine and surgery has been the fruitful application of the experimental method of research, just the same method which has been the great lever of all scientific advance in modern times. Strange as it may seem at the turning-point of the century, we are here, not as we should be, to ask you to foster and encourage scientific progress, but to beg you simply not to put legislative checks in its way. Our own contributions to this progress may now be small, but America is destined to take a place in this forward movement commensurate with her size and importance. We to-day should be recreant to a great trust, did we not do all in our power to protect our successors from the imposition of these trammels on freedom of research. Our appeal to you is not only in the name of science, but in the truest and widest sense in the name of humanity.

SPECIAL ARTICLE.

RELATIONS OF PHARMACY TO THE MEDICAL PROFESSION.*

V.

As indicated in our fourth article (THE JOURNAL, page 1178) the pharmaceutical preparations of secret composition protected by trade-marked and fancy names are not entitled to medical patronage. There remain now for consideration as allied preparations several other classes, including: 6. Proprietary Pharmaceuticals—preparations under trade-mark or copyrighted names of which the general constituents are known, the purported formulas being represented by enumeration of ingredients more or less intelligibly, without information as to how a similar preparation could be produced.

FORMULA PREPARATIONS.

Preparations of this class, from the fact that the formulas are either printed on the labels or appear in the advertisements, are regarded as unobjectionable by many medical men, while they are condemned by pharmacists, as being impracticable and sometimes as being outright fictions. These positions are, on the part of both physician and pharmacist, often wrong, being based on incomplete information on the pharmaceutical chemistry involved in the preparations of many of them. The formulas have purposely been designed to mislead, or the satisfactory preparation is dependent on a

* The fifth of a series of articles to appear weekly in THE JOURNAL, designed to correct the abuses from advertising and patronizing pharmaceutical specialties.

certain often complicated reaction. A few examples of each kind will illustrate:

A certain make of "tri-iodides" is said to contain "in each tablespoonful as iodids, the alkaloids of 30 grains each of semen colchicum, phytolacca decandra, solanum dulcamara, with 10 grains sodium salicylate." Now, the alkaloid of colchicum is exceedingly rare, those of phytolacca and solanum have yet to be produced on a commercial scale, and it is a well-established fact that the iodids are the most insoluble compounds of the alkaloids—in fact the assay of many alkaloidal drugs is effected by precipitating the alkaloids as iodids. The preparation could not be made from the alkaloids but, by using the fluid extracts of the respective drugs, adding an iodid, probably potassium iodid, the compounds, if formed at all, will be in minute quantities and will be kept in solution by the large amount of liquid and especially the alcohol, since the iodids, as well as the bromids, of the alkaloids, are soluble in liquids of certain alcoholic strength. The formula for this preparation becomes, therefore, exceedingly simple, but on its face it looks very scientific. It is intended to captivate the physician and to mystify the pharmacist.

Of a simpler order is "tongaline," containing tonga, cimicifuga racemosa, pilocarpus, colchicin and sodium salicylate. These are mixtures of fluid extracts of drugs known to contain active principles, but in order to create and maintain a monopoly in their sale, the formulas pretend that they are made from the alkaloids.

FORMULAS WITH "KINK PROCESSES."

A number of formulas are based on a somewhat different plan in that there is a "knack" in the preparation, as illustrated in one of the earliest and best known—the "hypnotic par excellence"—"bromidia." This is said to contain "15 grains each of chloral hydrate and potassium bromide and ⅛ grain each extract of hyoscyamus and genuine imported extract of cannabis indica in each fluidram." Cannabis indica extract is a complex resinous substance, as insoluble in water as is varnish, and its solution suggested the use of alcohol, and consequently aromatic elixir was employed as the vehicle or solvent, by pharmacists who were asked to compound the mixture by physicians, attracted by the formula, but who preferred to have it compounded by the pharmacist. On standing a short time the liquid separates in two layers, and the superior oily one can but momentarily be mixed with the heavier liquid of much larger volume. The extemporaneous compounding was therefore very unsatisfactory and the originators of the compound have had a monopoly of it for twenty years. It has become exceedingly popular and is extensively used by the laity, especially by dipsomaniacs.

A PHARMACEUTICAL PROBLEM.

The explanation is very simple. Chloral, in the presence of alcohol, is decomposed by alkalies into alcoholate of chloral, an oily liquid, insoluble in water and specifically lighter than water which, in the presence of syrup—from the elixir—rises to the top of the liquid. Its solvent power is almost as great as is that of chloroform, and it therefore extracts the alkaloidal principles of the hyoscyamus and cannabis, and all the medicinal agents except the potassium bromid will therefore be found in the immiscible top-layer of the liquid. With a large volume of the mixture, say 500 c.c., the amount of alkaloids may be so great as to cause fatal results from an ordinary dose, if the mixture be not thoroughly shaken before taken. Bromid of potassium is always slightly alkaline, it being necessary on the part of the manufacturer in order to insure stability and to produce an alkaline salt, to crystallize it from an alkaline solution. This alkalinity in the presence of alcohol breaks up the chloral hydrate. It has been found that by using water alone as the solvent a perfectly stable solution is obtained, and this is the secret of the "famous" hypnotic. While water has no effect on cannabis extract, the solution of chloral hydrate and potassium bromid in water has solvent properties nearly as great as chloroform, and this solution will therefore extract and hold in solution all the active principles of the cannabis extract, leaving only some inert resin. The following is the formula:

LIQUOR CHORALIS ET POTASSII BROMIDI COMPOSITUS.

℞ Chloralis hydratis
Potassii bromidi, āā 5
Ext. cannabis indicæ
Ext. hyoscyami, āā 1
Aquæ, q. s. ad 25

Dissolve the chloral and potassium bromid in 15 c.c. of hot water and add the solution in small quantities to the extracts, previously triturated with a little powdered pumice stone, contained in a mortar; let stand until cold, filter through cotton, adding water if necessary, with a little caramel, and if sweetness be desired, add a very little saccharin.

This is practically the strength of chloral and potassium bromid, which the preparation, as shown by analysis, contains.

A CHEMICAL PROBLEM.

As illustrative of the rôle chemical reactions play, the prescriptions of Dr. Barclay, "arsenauro" and "mercauro," are unique. These appear to be especially commended from the fact "that they are to be prescribed only on prescriptions," etc., and that the formulas are apparently bona-fide—and so they are. Arsenauro is said to "contain in each 10 minims, 1/32 gr. each of arsenic and gold bromids," and "to be a potent reconstructive." Many failures attended the earlier attempts to make a permanent solution, until some medical man and pharmacist in Pittsburg discovered the secret, viz., that the arsenous acid, as ordinarily employed, must be converted into orsenic acid before a stable compound with gold tribromid can be made. The formulas changed hands several times until they reached an adept in exploiting and had quite a run. The National Formulary gives the following, which differs only in containing 1/16 gr. tribromid of arsenic, instead of 1/32 gr.

LIQUOR AURI ET ARSENII BROMIDI.

℞ Acidi arseniosi ..... 2|5
Auri tribromidi ..... 3|25
Aquæ bromi et aquæ destil, q. s. ad 1000

The arsenous acid is added to 135 c.c. of bromin water, contained in a flask, and heated until free bromin has disappeared; then add bromin water until the solution does not become colorless after some time. Heat the solution in a capsule until excess of bromin has been expelled, dilute with water to 900 c.c., dissolve in this the gold tribromid and then add water to make 1000 c.c.

It will be observed that in the first instances here mentioned, there is no originality or skill required in the process, as they are mixtures such as any competent pharmacist should be able to prepare. The "formulas" have directly or indirectly originated with some prescriber and have been appropriated for the purpose of exploitation, monopoly being secured through the use of trade-mark names.

PROTECTION TO INVENTORS.

The two last-mentioned preparations are in an entirely different category. In one, superior pharmaceutical knowledge and skill are required to form a uniform and stable solution of the cannabis extract and chloral and potassium bromid. The successful production was certainly as great an invention as was that of the traditional lever stovelid-lifter and a thousand and one little ideas which have made fortunes for their inventors. It was a pharmaceutical invention, and as such should have been entitled to limited protection through patent on the process. This would have prevented secrecy, protected the original inventor, and made the entire product public property through expiration of the patent. The same may be said of the arsenical preparation. That the arsenous acid must be converted into arsenic acid, as far as applied to this preparation, was, it is believed, an invention, showing originality and chemical skill. If the process had been patented the inventors would have had some protection, the patent would have been valuable and a princely royalty could have been secured for them as compensation. Instead they sold (?) their invention for a "mess of pottage."

The position on this class of medicines should therefore be the same as on the first-named. Their claims for medical patronage based on invention must be proved by patent on

the process. All parties concerned will then be protected, and medical and pharmaceutical literature will be preserved.

A committee of control, as already proposed, would be of great service in protecting inventors and determining the status of these medicinal articles.

The next class to be considered will be Pharmaceutical Specialties.

Therapeutics.

The Treatment of Seasickness.

At a recent meeting of the Northumberland and Durham Medical Society, McDougall (*British Medical Journal*, March 24, 1900, p. 707) described the results he had obtained in the treatment of seasickness by the hypodermic injection of atropin and strychnin. He had employed these remedies in 47 cases, with complete success in forty and with partial success in the remainder. The doses used have been from 1/60 to 1/30 grain of strychnin sulphate and 1/150 gr. of atropin sulphate dissolved in from 10 to 15 minims of peppermint-water. When necessary the dose was repeated in a few hours or on the next day. The injection should be given at the onset of nausea or discomfort, or as a prophylaxis in susceptible persons. The symptoms of seasickness being those of circulatory depression and cerebral anemia, this stimulating treatment is preferable to the use of sedative drugs, as it places the patient in the best position to avail himself of the natural prophylactics—food and exercise.

Dysentery.

Dr. J. O. Samtchouk, a Russian military physician, treats dysentery in the following way: As the first dose, 3iv to v of sodium sulphate are given; about two hours later, 3ii of sodium bicarbonate; two hours later, gr. iv of ergotin. This amount of ergotin is repeated once or twice a day, according to the amount of blood found in the stools. The following is also given:

℞ Bismuthi subnit.....gr. iv
Acidi tannici.....gr. ivss
Quininæ sulph.....gr. ii
M. ft. One powder. Give three or four such powders a day.

After each stool, in old cases, tannin douches are used in addition, 3i to 4 or 5 glasses of warm water. As food, is given a decoction of barley, to which are added butter, eggs and bread. Tea is given for drink. Recovery is said to result in two or three days in recent cases. —*Merck's Archives.*

Treatment of Ozena.

Bommier recommends the following course of treatment to be carried out by the patient: Twice a day he is to take a nasal douche of boiled water plus a tablespoonful of salt to the liter, using for this purpose a Weber siphon, elevated about two feet above his head. During the douche he should breathe through his mouth, avoid swallowing, and keep the soft palate raised by pronouncing the vowel a. After the douche the patient is to introduce the following ointment into his nasal fossæ, using for each side a bit the size of a bean, while holding his head backward:

℞ Menthol.....gr. iv
Acidi borici.....3ss
Vaselini alb.....3i
Olei geran. rosat.....gtt. xx
M. ft. Unguentum. Sig. For external use.
—*Medical News.*

Formalin-Alcohol in Night-Sweats of Tuberculosis.

At a recent meeting of the Berlin Medical Society, Hirschfeld (*Berliner Klin. Woch.*, 1900, No. 15, p. 326) reported the results of local application of a mixture of equal parts of formalin and absolute alcohol by means of a soft brush or a cotton swab in the suppression of the sweating in cases of tuberculosis. Under no circumstances should all of the clothing of the patient be removed, as the vapor set free from the warm skin would gain access and cause annoyance to the eyes and respiratory organs.

The patient should wear at least a shirt, which can be thrown over his head. In practice the chest and the abdomen are covered with rubber cloth, fastened about the neck, and drawn over these parts and kept in place for an hour after the application is made. This mode of treatment was pursued in 100 cases of pulmonary tuberculosis without unpleasant results in any. In only four of the cases was the desired effect not attained. In some instances a single application sufficed for weeks. In others it had to be repeated. The skin appeared to bear the medicine well. The chest and the abdomen, anteriorly and posteriorly, were painted at one sitting, and the legs, if involved, on the following day. When the head was the seat of trouble, cotton squeezed out of the solution was rubbed on it. The application should not be made to wounds or abrasions of the skin, such as may be induced by a mustard plaster or iodin, and also not to the nipples, the umbilicus, the genitalia and the anus. Slight burning follows the application, but this soon disappears. In persons with a delicate skin the concentration of the application should be lessened. The patient should not be permitted to use the solution himself.

For Intestinal Dyspepsia with Flatulence.

℞ Pepsini puræ
Pancreatini, ää.....gr. xxx
Pulv. carbo. liqui
Bismuthi subgallatis, ää.....gr. lx
M. Ft. powders xii. Sig. One before each meal.
—*Wells: Medical Record.*

Palatable Trional Mixture.

One of the objections to trional is its difficulty of solution and also its unpleasantness of administration when given in the usual method. The following will be found an excellent method of making a palatable mixture.

℞ Trional.....3ii
Ol. amygdal. dulc.....3i
Gum acac.....3iv
Syrup tolutan.....3i
Aquæ aurant. concent.....3iv
Aquæ pur. q. s. ad.....3iv
M. Ft. Emulsion.

Given in this way the hypnotic effect is as pronounced, and far more readily obtained than in the present method of administering the drug. —*M. A. H. Thelberg, New York City.*

Tubercular Syphilides.

Dr. A. H. Ohmann-Dumesnil (*St. Louis Med. and Surg. Jour.*) suggests the following local applications for tubercular syphilides:

℞ Acidi salicylici.....gr. xx
Ichthyolis.....3iv
Ung. aquæ rosæ.....3i
M. Sig. Apply thoroughly twice a day.

If there be objections to using an ointment, the following, which is but a type of preparations to use, will be found very efficient. It is dry, water-proof, and not easily removed by friction:

℞ Acidi salicylici.....gr. xx
Cocaini hydrochloratis.....gr. iv
Traumaticini or collod. flex.....3i
M. Sig. Paint on affected parts twice a day.

After the disappearance of the skin symptoms a bland ointment should be applied at night. An excellent one is the following.

℞ Hydrarg. chloridi mitis.....3ss
Ung. aquæ rosæ.....3ii
M. Sig. Apply thoroughly at night.

Treatment of Alcoholism.

Morton (*Brooklyn Med. Jour.*, May 26) does not restrict himself to any special drug in the treatment of alcoholic cases, but individualizes his treatment. In some cases he stops the use of alcoholics on the first day and in others continues it for three or four days after admission, though not longer as a rule. He believes in stopping the use of the intoxicant as rapidly as possible, not so soon as to shock the person or start up a delirium. The drugs he prefers are strychnia in small doses to strengthen the heart, a laxative to relieve arterial

congestion, and a sedative like bromid of soda. For old drinkers he gives liquid diet every two hours, occasional baths and rest in bed. He uses chlorid of gold in fractional doses, and hypodermics of strychnia and atropia, with good results, also extract of ipecac in small doses in a glass of whisky three times a day until the patient is thoroughly nauseated. He thinks the saving of life in critical cases is due to the use of heart tonics and nourishing diet given frequently. He does not employ chloral, hyoscyamin or hydrobromate of hyoscin.

Treatment of Influenza.

Johnson (*Med. Review*, May 12) finds that quinin is one of the best preventives of influenza, and irrigation of the mouth and nasal cavities is also of value. Fumigation of the apartments of the influenza patient should be done even before the convalescence. To prevent relapse, the patient should not be allowed to get out of bed within twenty-four hours after complete subsidence of the fever, and in some cases even this is not sufficient. In checking la grippe at the onset diaphoresis is of value and if we can also produce a sialorrhea it will have a good effect. These combined results may be obtained with pilocarpin. Phenacetin and Dover's powder may be used for their analgesic and diaphoretic effects, and, if pilocarpin is contraindicated, quinin and Dover's powders, hot lemonade and a hot foot-bath may be used. For elimination and cleaning of the alimentary canal, calomel in divided doses is to be recommended. For the pains, headache and neuralgia, he has found the use of salipyrin and phenacetin of value. Quinin and salicylates hold first place as specifics for this disease. For the special symptom of nasal catarrh he offers the following prescription:

℞ Mentholis ..... gr. i
Magnesiæ carbonatis levis ..... gr. v
Cocainæ muriatis ..... gr. v
Sacchari lactis ..... ʒiss
M. Sig. As snuff.

As a substitute for the above, finely powdered white sugar and camphor may be used as a snuff. Syringing the nasal cavities with Dobell's solution is good practice. A teasing cough is often relieved by occasionally spraying with

℞ Cocainæ ..... gr. v
Antipyrin ..... ʒii
Aquæ gaultheriæ ..... ʒii

The cocain may be omitted. Strychnia is useful in the depression of and after la grippe. He has found asafetida, combined with tonics, of value.

Pruritus Ani.

Adler's treatment for pruritus ani (*Philadelphia Medical Journal*, May 12) consists largely in paying attention to the removal of the factors complicating pruritus, if such exist, and then giving local treatment for itching. It is important to see that there is a daily evacuation of the bowels, and if necessary, medicine should be used for this purpose. In all cases there is more or less pruritus of the hemorrhoidal veins, and he is in the habit of seeing the patient daily for a time and using an injection into the cavity of 1 to 2½ drams of the following prescription:

℞ Fluid ext. hamamelidis ..... ʒi
Fluid ext. ergotæ
Fluid ext. hydrastis
Comp. tinct. benzoini, āā ..... ʒii
Olei olivæ or lini, carbolized (5 per cent.) .. ʒi
M. Sig. Shake well before using.

The patient is advised prior to using this injection to remain quiet and resist the sensation of immediate evacuation. On the first visit, if the skin has a very hard and dry surface, he paints around the anus for several inches with a strong (saturated) solution of silver nitrate. If the skin is broken, a little 2 per cent. solution of cocain is used to prevent eruption from this application. The application of silver may have to be repeated two or three times, not oftener, however, than every third day. As soon as the silver is dried he smears over the anus and the cutaneous surface of the parts for a distance of about 2 inches, the official citrine ointment in full strength and repeats on subsequent visits. Over this he uses a wad of absorbent cotton, kept in place with a T-bandage, which is to be worn all day and over night. If the itching should annoy during the night the patient is advised to use hot water as hot as can be borne, but under no consideration to rub the parts. After using the water he is directed to use a solution of black wash or, what is better in some cases, calomel ointment applied locally. Prior to coming to the office for the next treatment he may wash the parts with castile soap, though this is not essential as a routine practice. No rubbing is to be permitted. For the first two or three weeks the patient is seen daily, then every second day for a like period or longer time; after that once or twice a week will suffice until the disease is conquered. The treatment should be continued for about six months. A definite promise of cure should not be given, and he warns the patient that the itching may return any time, but that it must not be considered a bad sign. Sometimes during the use of nitrate of mercury ointment the parts become sore, presumably from scratching during sleep. Under these circumstances the ointment may be discontinued for a few days and calomel ointment substituted. He has never seen any bad effects from mercury. With a large number of cases thus treated he has not had a single failure.

Medicolegal.

Five Dollars Not Enough for Scalp Wound.—The General Term of the City Court of New York holds, in the case of Levison vs. Bernheimer and others, that an allowance by a jury of five dollars is insufficient to compensate a person for a lacerated scalp wound that a physician washed with bichlorides and bandaged up, where same was found to have been caused by the negligence of the defendants.

Destruction of House Over Sick Person.—The owner of a house who knows that a member of the tenant's family whose term as lessee has expired is sick and unable to leave her bed without danger, the appellate division, second department, of the Supreme Court of New York holds, in Prieser vs. Wielandt, is liable for all the natural and necessary consequences which he might or should have reasonably anticipated from proceeding to demolish the house over such sick person, although no actual blow is struck the latter in the course of the destruction of the building.

Can Recover Compensation Without Certificate.—The Court of Civil Appeals of Texas reaffirms, in the case of Carleton vs. Sloan, that a regular practicing physician, holding a diploma from an accredited medical college chartered by the legislature of the state in which it is situated, who has had such diploma duly filed and recorded in the county of his residence, where he has practiced his profession, can recover for professional services rendered by him, notwithstanding he may have never obtained from a medical board appointed by a district judge of Texas a certificate to practice medicine.

Entitled to Reward for Finding Dead Body.—The Supreme Court of Nebraska holds that the mere fact of being one of a party discovering a dead body for which a reward has been offered is not of itself sufficient to entitle one to share in the reward. It must further appear that the efforts put forth were in conjunction with the party who succeeded in the search, and with whom there was co-operation for that purpose; that such persons were acting in concert, and by their joint efforts the desired end was accomplished. Therefore, the court holds, in Elkhorn Valley Lodge vs. Hudson, where many persons are engaged in the search for a dead body, for the recovery of which a reward is offered, and one acting on his own account, independent of the others, and for the purpose of securing the reward, succeeds in finding the missing body, he will be entitled to the whole of such reward.

Non-Expert Can Not Say About Legal Capacity.—The Supreme Court of Rhode Island says that the uniform practice in that court has been to permit non-expert witnesses to testify to facts which they have observed bearing on the

mental condition of a testator, and then to give their opinions as to his mental condition, derived from those facts. But it holds, in Hopkins vs. Wheeler, clearly inadmissable the question whether a certain person was in a condition to make a will, asked of a witness who was not an expert on the subject of mental capacity. It condemns the question because it calls for the opinion of the witness as to the degree of mental capacity required by law for the making of a will.

Valid Contract with Employee.—The Supreme Court of Georgia holds, in Petty vs. Brunswick & Western Railway Company, that a contract between an employee and his master, or another acting in the latter's interest, such as a relief and hospital association, by the terms of which contract the employee, when physically injured, whether as a result of his own negligence or not, or when sick, is to receive pecuniary or other valuable benefits, and which stipulates that his voluntary acceptance of any such benefits in case of injury is to operate as a release of the master from all liability on account thereof, is not contrary to public policy. The court considers that such a contract secures to the employee substantial benefits, and that the master has contributed to the fund for the payment thereof constitutes a valuable consideration. as to the employee; and this, it maintains, is true though the employee himself made a small monthly contribution to that fund. So it holds that a contract of this kind is not wanting in mutuality. Furthermore, one who deals with an association as a legal entity capable of transacting business, and in consequence receives from it money or other thing of value, the court holds, is debarred from denying the legality of its existence or its right to contract. This settled, the court then more particularly holds that the acceptance by an injured employee of any benefit under a contract of the kind first-above described is an election on his part to look exclusively to that source for compensation on account of the injury, and amounts to a complete satisfaction of his claim for damages against his master therefrom arising.

Liability for Injury by Private Ambulance.—In Green vs. Eden the Appellate Court of Indiana has affirmed a judgment for damages for the injury of a pedestrian by an ambulance. Among other things, the court holds that it can not assume, from an averment that the defendants were operating a "hospital ambulance," that the ambulance was a public vehicle, and being operated for the public good. Nor does it consider that it was necessary to aver that they derived benefit from the operation of the ambulance. But one of their defenses was that they had entered into a contract with the city whereby they bound themselves to keep a hospital ambulance for the use of the city, and to furnish therefor a horse and driver, the ambulance to be under the control of the dispensary surgeon, and all calls coming through the city dispensary must be promptly answered, and that when the injury complained of was inflicted the ambulance was, in accordance with that contract, under the exclusive control and direction of the surgeon in the employ of the city, then and there in charge of the ambulance. Nevertheless, the court not only pronounces inapplicable that line of cases holding that a municipal corporation can not be held liable for damages resulting from the negligent act of a driver of a city ambulance while driving through its streets, but it holds that the defendants could not escape from the results of their alleged negligent acts by saying that when the injury in question occurred the ambulance was under the management, control, and direction of the dispensary surgeon, an employee of the city. The city, through its servant or employee, the surgeon, it holds, could not authorize the defendants, through their servant, the driver of the ambulance, to be guilty of actionable negligence, or recklessness, or carelessness in driving the ambulance through the streets of the city at a high and dangerous rate of speed. Again the defendants argued that the plaintiff had failed to make a case, because it was established that when he was injured the ambulance was conveying an injured person to the hospital, and was being driven at a high rate of speed, at the direction of the surgeon, and that there was necessity for so doing to save life. However, to sustain such a proposition by a judicial decision would, the court thinks, establish a dangerous precedent. It may be, and doubtless is, it maintains, as necessary and important to protect the life and limb of the innocent pedestrian upon the street, whether child or adult, whether infirm or in the full vigor of years and health, as it is of the person who is being conveyed in an ambulance. And to establish any other rule, it declares, would be to wholly disregard the rights and life of the pedestrian under such circumstances, which it is not willing to do.

Construction of Contract for Cure.—In Wellman vs. Jones, the Supreme Court of Alabama had before it an action on a contract which provided that, if Jones, the plaintiff in the court below, would place his brother in a certain named institute, to be treated as a patient addicted to the excessive use of morphin and chloral, and would pay in cash the sum of one hundred dollars to the proper officer of the institute, the party signing this contract would return, on demand, to the said Jones, the said sum of one hundred dollars, provided his brother was not fully and permanently cured by the treatment of said institution of the use and habit of morphin and chloral. This contract, in terms, the supreme court, first of all, declares, was plainly an original undertaking between the said Jones and the defendant, and consequently not open to the defense of the statute of frauds relating to "promises to answer for the debt, default, or miscarriage of another." As shown by the evidence, the brother in question was addicted to the habitual and excessive use of morphin and chloral, and it was of this excessive use and habit, by the terms of the contract, he was to be cured. He entered the institute, and received treatment for that purpose, and, after receiving treatment, he left said institute, claiming that a cure had been effected, but within a short while thereafter returned to his former habit and excessive use of these drugs. This leads the supreme court to say that it thinks the fair and reasonable interpretation to be given to the words "fully and permanently cured," as employed in the written contract sued on, when construed in the light of the attendant conditions and circumstances, was that the patient should be restored to the normal condition of body and mind, with the same will power to resist the desire to indulge in the use of morphin and chloral that he possessed and enjoyed before the habit was acquired. It would be an unreasonable construction of the contract, it maintains, to say that it was the intention of the parties that the patient should be put in that condition that he could never again take the drug—a contract impossible of performance—if by the cure the patient was restored to the normal condition of body and mind and will power possessed before the habit was acquired. But if, as a matter of fact, a cure had not been effected in accordance with the conditions of the contract, the court holds that the plaintiff would not be deprived of his right of action growing out of the failure to cure, although, at the time his brother left the institute, its managing officer, as well as the plaintiff and his brother, were under the mistaken belief that the latter had been cured. Moreover, the court holds that it was no defense to an action on this contract that neither the institute nor its managing officer had a certificate or license from the medical board of examiners to practice medicine or sell drugs, the contract by the defendant being to pay back to the plaintiff the amount paid by him to a proper officer of the institute, in the event a cure of his brother was not effected under the treatment to be given by the institute. There was nothing in this contract, the court says, violative of any provision of the statute against the practice of medicine without a certificate from the board of examiners. Again, so far as the institute itself, a domestic corporation, was concerned, the court says that it is impossible to conceive of a corporation engaging in the practice of medicine, or of conforming to the requirements necessary to obtain a certificate from the board of medical examiners. These provisions of the law can not be applied to a body corporate, and were never so intended. They can only be made to apply to persons or individuals capable of complying with the requirements necessary to obtain the certificate.

Societies.

COMING MEETINGS.

AMERICAN MEDICAL ASSOCIATION, Atlantic City, N. J., June 5-8.

Association of Military Surgeons of the United States, New York City, May 31 to June 2.

American Laryngological, Rhinological and Otological Society, Philadelphia, May 31, June 1 and 2.

New Hampshire Medical Society, Concord, May 31 and June 1.

International Association of Railway Surgeons, Detroit, Mich., May 30 to June 1.

Baltimore & Ohio Association of Railway Surgeons, Atlantic City, N. J., June 1-2.

Conf. of State and Prov. Bds. of Health of N. A., Atlantic City, N. J., June 1-2.

American Academy of Medicine, Atlantic City, N. J., June 4.

American Medical Publishers' Association, Atlantic City, N. J., June 4.

American Medical Editors' Association, Atlantic City, N. J., June 4.

Association of American Medical Colleges, Atlantic City, N. J., June 4.

Medical Society of New Jersey, Atlantic City, N. J., June 4.

New Mexico Medical Society, Santa Fe, June 5.

American Association of Acting Assistant-Surgeons, U. S. Army, Atlantic City, N. J., June 6.

Rhode Island Medical Society, Providence, June 7.

Medical Association of Delaware, Rehoboth, June 12.

Massachusetts Medical Society, Boston, June 12-13.

Oregon State Medical Society, Portland, June 26-27.

Colorado State Medical Society, Denver, June 13.

Maine Medical Association, Portland, June 13-15.

South Dakota State Medical Society, Aberdeen, June 14.

Indian Territory Medical Association, Wagoner, June 19-20.

Wisconsin State Medical Society, Milwaukee, June 20.

Third District Branch of the New York State Medical Association, Binghamton, N. Y., June 21.

Second District Branch of the New York State Medical Association, Schenectady, N. Y., June 28.

Oregon State Medical Society.—At the annual meeting of this Society, to be held in Portland, Ore., June 26 and 27, Dr. A. M. Phelps, of New York City, will give two addresses, and operate on cases to illustrate his remarks.

Texas State Medical Association.—B. E. Hadra, of Waco, was elected president of the Texas State Medical Association, at its recent meeting. Galveston was chosen as the meeting-place for the next session, to be held in April, 1901.

Thirteenth International Medical Congress.—During the week of this Congress, to be held in Paris, August 2-9, free admission to the Paris Exposition will be granted to members of the Congress. To secure this, members will receive a special card by applying to the office of the Congress, 21 rue de l'École-de-Médecine.

Brazos Valley Medical Association.—At the recent meeting of this Association, in Caldwell, Texas, the officers elected for the coming year were: president, L. P. Oliver, Caldwell; first vice-president, M. L. Langford, Baileyville; second vice-president, E. S. Ferguson, Cameron; secretary, W. B. Briggs, Easterly; treasurer, J. W. Hudson, Milano.

American Proctologic Society.—The following officers were elected by the American Proctologic Society, at Washington, D. C., May 5: president, Jas. P. Tuttle, New York City; vice-president, Thos. Chas. Martin, Cleveland, Ohio; secretary, Wm. M. Beach, Pittsburg, Pa.; executive council, S. T. Earle, Jr., of Baltimore, Md.; A. B. Cooke, of Nashville, Tenn.; J. R. Pennington, of Chicago.

International Congress of the Medical Press.—The sessions will be held in the United States Press Pavilion, Paris Exposition, July 26 to 29. The American delegates are as follows: From the Association of American Medical Editors —Drs. J. M. Mathews and Horace Grant, Louisville, Ky.; George F. Butler, Alma, Mich.; George H. Simmons, Chicago; C. F. Taylor and H. A. Hare, Philadelphia; Dillon Brown and Daniel Lewis, New York City; Thos. H. Hawkins, Denver, Colo.; Henry W. Coe, Portland, Ore. Those from the American Medical Publishers' Association are: Dr. J. C. Culbertson, Cincinnati, Ohio; J. MacDonald, New York City; Drs. Ferdinand King, New York City; Charles Wood Fassett, St. Joseph, Mo.; Landon B. Edwards, Richmond, Va. Those from the Medical Press Club of the Mississippi Valley are: Drs. I. N. Love, St. Louis, Mo.; Frank P. Norbury, Jacksonville, Ill.; Alexander J. Stone, St. Paul, Minn.; John Punton, Kansas City, Mo.; Hanau W. Loeb, C. G. Chaddock, and O. F. Ball, St. Louis. Interesting papers on timely topics will be presented by delegates from the various countries. A symposium on "The American Idea of an International Press Congress" will be read by Dr. Charles Wood Fassett, of the *Medical Herald*, St. Joseph, Mo. Dr. I. N. Love, editor of the *Medical Mirror*, St. Louis, Mo., will present a thesis on "The Relationship of a Medical Editor to the Publisher."

Toronto Tuberculosis Association.—This Association held its inaugural meeting recently. Dr. E. J. Barrick, Toronto, was elected its first president. The objects of the Association were outlined by Dr. Barrick, in his presidential address. An active campaign will be at once pushed toward securing a large membership, first 1000 and then gradually extending until there is something like 5000 members. The city council will be appealed to for the purpose of submitting a bill to the rate-payers at the next municipal elections authorizing the city to expend $50,000 in the erection of a sanitarium. In addition to this an appeal is to be made to philanthropically disposed persons for contributions, donations and bequests. Then a campaign of education will be enthusiastically prosecuted along the line of showing the people that it will be better to expend money in this direction than for the orphans of the victims of the disease. It is presumed that there are 8000 consumptives in Ontario; and the only sanitarium accommodation provided for these unfortunates is the fifty beds at the Gravenhurst institution. The problem which this Association will try to solve is the bringing of sanitarium treatment within the reach of the other 7950 afflicted ones. It was largely through the efforts of this Association that the Ontario government granted legislation toward helping municipalities in the erection and maintenance of these institutions.

Confederation of Examining Boards.—The National Confederation of State Medical Examining and Licensing Boards, will hold its tenth annual meeting, at the Hotel Traymore, Atlantic City, N. J., Monday, June 4, the morning session at 9:30, the afternoon at 2:30 o'clock. The program includes the following: Address of Welcome, by Hon. F. P. Stoy, Mayor of Atlantic City; Address of Welcome on Behalf of the Medical Profession of Atlantic City, by W. Blair Stewart; Address of Welcome on Behalf of the State Board of Medical Examiners, of New Jersey, by William Perry Watson, Newark; Response, by Vice-President N. R. Coleman; Annual Address by the President—"The Work Accomplished under the Kentucky Law;" "Associate Medical Examining Boards," by Charles A. Groves, East Orange, N. J.; "A Brief Review of the Medical Curriculum of the United States with Special Reference to its Defects and Indicated Modifications, as Demonstrated by the State Medical Examinations of Pennsylvania;" Henry Beates, Jr., Philadelphia; "The New Medical Law of Ohio," by Hon. Maro J. Love, Bloomingville; "The Co-operation of the Medical Profession of the United States with the National Confederation of State Medical Examining and Licensing Boards in Establishing Interstate Reciprocity for the License to Practice Medicine," by Emil Amberg, Detroit, Mich.; Discussion: "What Steps Shall be Taken to Establish a Uniform Standard of Preliminary Requirements in Accordance with the Recommendations Contained in the Report of the Committee on Minimum Standards, Adopted June 5, 1899?" The following members will lead—N. R. Coleman, Columbus, Ohio; William Warren Potter, Buffalo, N. Y.; Augustus Korndoerfer, Philadelphia, Pa.; Joseph M. Mathews, Louisville, Ky.

Illinois State Medical Society.

Fiftieth Annual Meeting, Springfield, May 15-17, 1900.

MEDICINE OR SURGERY: ARE THEY SEPARATE? IF NOT, WHICH IS THE SCIENCE, WHICH THE SPECIALTY?

DR. A. C. CORR, East St. Louis, delivered the address of the section on practice of medicine, using this subject. He said that medicine and surgery are inseparable in practice, except in the extremes; that medicine is a science and embraces all that comes under the head of the practice of medicine; that the tendency to be enticed by the glamor of surgery for its mere physical appearances is strong; but physicians forget that tissues have properties that may by a classified derangement constitute a disease and that these properties may be modified by medicines so as to correct the aberration and cure the disease. If surgery arrogates much, medicine must become in a restricted sense a specialty. The well-informed general practitioner is the only one who can comprehend the whole situation, is the safest one to trust, and the best exponent of the science and practice of medicine. None are competent to practice a specialty until they have studied and practiced general medicine for at least ten years.

DR. M. S. MARCY, Peoria, said that not every physician is a surgeon by any means and that the attempts of various physicians to become one have been detrimental to the population. This is especially true since appendicitis has become such a fashionable disease and there is a furor for operating. Owing to this, many lives have been sacrificed by inexperienced practitioners trying to operate on cases of appendicitis.

DR. H. B. BROWN, Decatur, said that the specialist should first be a general practitioner, and as such must necessarily have some knowledge of surgery, although his manual dexterity may not be as fully developed.

DR. R. H. HENRY, Peotone, said that the country doctor must learn to amputate a limb, to ligate an artery, and to perform laparotomy, etc., consequently he is a surgeon in the strict sense of the word, and that every practitioner must qualify himself the best he can to do surgical work.

DR. O. B. WILL, Peoria, said that some practitioners make good diagnosticians, some good therapeutists and others expert operators; and that what is expected of every man is that he will have sense to know, and the honesty to express himself when he does not know.

DR. J. N. NELMS, Taylorville, said that in order to be successful the surgeon must necessarily be a skilled mechanic, and that this requirement should be exacted of him before he graduates. If he has not the aptitude of a surgeon, he should be the first to know it, and people soon learn whether a man is skilful or not in any department of medicine.

DR. A. C. CORR, in closing, said that the essential feature of his paper was to elicit the opinions of members in regard to stopping, or at least restricting, what he designated as premature specialism.

CHRONIC GASTRITIS.

DR. JAMES BRAYSHAW, Berlin, contributed a paper on this subject, and entered a protest against the use of the tube recommended by Hemmeter; for, although it is quite soft, it is provided with a sharp, chisel-like edge around the lower opening, for the purpose of loosening pieces of carcinomatous tissue, and such an instrument is dangerous in the hands of the average practitioner. Fermentation and dilatation, one or both, are usually present in chronic gastritis, but chronic gastritis is not always an accompaniment of the former conditions. In the treatment he recommended lavage, as it not only cleanses the stomach, but stimulates the muscularis. Another method of treatment is the use of abdominal massage; this may be carried out more or less perfectly with the hands, if one is a skilled masseur, or by rolling a metal ball over the abdomen. A method he has not seen recommended, but which has given excellent results in his hands as an adjuvant, is the interrupted and alternating galvanic current passed directly through the walls of the stomach.

OUR MILK-SUPPLY; SOME OBSERVATIONS AT HOME AND ABROAD.

DR. S. E. MUNSON, Springfield, in discussing this subject, considered the milk from the time of its delivery to the conditions influencing its protection. He said that it is absolutely essential to start with a healthy animal in order to have Nature's milk laboratory give us a supply of pure, wholesome milk. Such laws as we have already regulating disease in cattle should be rigidly enforced, and additional ones enacted. "Only the State can guard against the dirty milk, corrupted or polluted water-supply, impure ice, etc., and nothing but medical supervision will accomplish these objects, and there are no agents so effective as physicians to spread through all classes of the community the educational sense of sanitary decency."

DR. CHARLES B. REED, Chicago, mentioned the work of a legislative committee appointed to investigate the feeding of distillers' slops and brewery grain to cattle. It was found that cattle so fed were markedly tubercular to a greater degree than those that had been fed on so-called pasture food. It was likewise found that where the milk of these cattle was fed to infants and young children, there was a larger portion of infantile alimentary diseases.

DR. FRANK P. NORBURY, Jacksonville, spoke of the satisfactory results obtained in investigating the condition of cattle from the tuberculin test, and pointed out the great necessity and importance of conducting these tests and examinations more extensively, and having them involve all herds from which the public secures its milk-supply.

DR. W. H. KIRBY, Chestnut, said that the value of the tuberculin test had been conclusively demonstrated, and that all physicians should give it their support.

DR. E. H. OCHSNER, Chicago, said that if physicians, through their influence, would make a demand for Pasteurized or pure milk from tested herds, dairymen would supply it.

DR. KATHERINE MILLER, Lincoln, pointed out the necessity of having the milk-cans thoroughly clean, as the source of contamination in many instances can be traced to them.

DR. A. C. CORR, East St. Louis, said it is inconvenient and expensive for men who own small farms and have small herds of cattle to carry out some of the plans and tests mentioned.

NEPHRITIS.

DR. J. W. KELLY, Springfield, read a paper on this subject. He emphasized its prevalence, alluded to the reasons for this, and cited illustrations. He dwelt on the importance of an accurate and early diagnosis, and closed by reporting three instructive cases.

IS PNEUMONIA CONTAGIOUS?

DR. J. T. MCANALY, Carbondale, considered this question, and the following conclusions and inferences were drawn: 1. Pneumonia is an acute specific and mildly contagious disease produced by the micrococcus lanceolatus, involving the vesicular structure of the lungs in an exudate of greater or less extent, and is attended by the severe and often dangerous constitutional symptoms due to the toxins produced by the infecting micro-organism. 2. Isolation should always be recommended, and no two patients should occupy the same room at the same time. The aged and children, owing to the great mortality among them and to the enfeebled powers of resistance of the former, should be excluded from the sick-room. 3. The room should be large, and should be kept well ventilated, as pure air is very essential for a pneumonia patient. The danger of vitiated air should be constantly borne in mind, for it is a point to be doubly guarded because of its harmful effects on the patient, and of its dangers to the attendants. 4. The prompt and thorough disposal of all pneumonic sputa is important, for while it may be harmless to-day, it may be dangerous to-morrow. Prophylaxis is clearly one of the most important points to be considered. Since the true nature of pneumonia has been demonstrated by the bacteriologist, we may the more readily appreciate its dangers and guard against the septic possibilities resulting from pneumococcic invasions. 5. The rapid increase in our knowledge of bacteriology and the introduction of specific remedies afford ground for the hope that soon we may discover a treatment for this disease as certain and effective as that of antitoxin for diphtheria, or quinin for malaria.

THE EVILS RESULTING FROM NAMING DISEASES FOR INDIVIDUALS.

DR. N. S. DAVIS, SR., Chicago, read a paper on this subject, bringing out the following points: 1. It is very inconvenient.

2. It is meaningless, i. e., it conveys no information concerning the causes of location, nature or results of the disease. 3. It is unscientific. Disease is necessarily a deviation from the healthy condition of function or structure of some part of the whole of the living body; consequently its name should be suggestive of the nature, and, when possible, also of the chief seat of the disease.

DR. HAROLD N. MOYER, Chicago, said that society owes thanks for this calling of attention to the vicious nomenclature of medicine, and that the time is almost ripe when organized medicine should take some action to abolish the method of naming diseases for individuals.

DR. JOHN H. HOLLISTER, Chicago, emphasized the necessity of creating an urgent demand by the medical profession for greater simplicity of terms, so that they shall be self-explanatory. He expressed the hope that the profession would soon reach the termination of the creation of new names for drugs.

DR. A. C. CORE said that physicians should keep in mind the physiologic action of drugs, in order to counteract the pathologic changes that take place and be able to meet the indications that are required in the treatment of the diseases which are recognized.

DR. T. J. PITNER, Jacksonville, called attention to the fact that in the specific diseases, where we have a distinct bacillus which is recognized as characteristic of and causing the disease, it does not act alone, but is modified by other germs and other pathologic processes which must be considered. Examples were cited.

DIAGNOSIS OF TUMORS OF SPINAL CORD AND ITS MEMBRANES.

DR. FRANK P. NORBURY, Jacksonville, considered this subject and said that disturbed functions of the cord vary in intensity and kind, involving either it or its membranes, or both. But as symptoms of organic disease, and especially tumors affecting the cord or its membranes, are similar, it is necessary to study symptoms in common. Practical diagnosis recognizes the local sequence of symptoms and does not accept as disease, what, in many instances, are purely symptoms. When possible, differential diagnosis considers the pathogenesis of tumors. Defective function is seemingly not commensurate with existing lesions, and in some cases the reverse is true. Symptoms should be systematically considered, and the plan of Eskridge is a good one, viz.: irritation of the nerve-roots; meningeal symptoms; cord symptoms.

Irritation of the nerve-roots begins by changes in sensibility—pain, neuralgic in character; and neuralgia is apt to be the diagnosis. Sensory symptoms, usually unilateral at the beginning, become more pronounced as the neoplasm develops. Segmental diagnosis is of assistance here, as soon as local symptoms appear. Motor symptoms usually give the clue as to localization; numbness, hyperesthesia, and later anesthesia follow along the distribution of the nerves involved; and contracture, spasm and exaggerated reflexes of the extremities are noted.

In regard to meningeal symptoms there are no pronounced differentiating symptoms, except Kernig's sign and muscular rigidity, when the upper cervical region is involved.

The cord symptoms are those of gradual compression of the cord, viz., motor and sensory paralysis, spastic symptoms, vasomotor, trophic and reflex changes, and differential diagnosis as to intradural, intramedullary location requires careful investigation.

The vasomotor and trophic symptoms are sweating, unilateral and profuse; occasional deep capillary flushings, herpetic skin eruptions; bed-sores, and change in the skin and nails.

As to differential diagnosis, caries is to be noted, the great point being the history or presence of tuberculous infection elsewhere. This is suspected in young persons, and especially when there is a clinical history suspicious of tuberculosis. The pain, tenderness, deformity, muscular rigidity, are also points in differentiations. Carcinoma is also to be considered—the history of removal of malignant growth. A case was mentioned with constant bilateral sciatica present; and lumbar carcinoma found after death; also some deformity, etc. Cervico-occipital neuralgia, myelitis, syringomyelia, spinal syphilitic tumor are also to be considered in differentiation.

The observations and conclusions were derived from the study of three cases: One of tuberculous tumor, intramedullary, cervical region; one of sarcomatous, dorsal region, extradural; one of carcinoma, extradural, lumbar region. Post-mortem findings confirmed the diagnosis in two cases.

DR. HUGH T. PATRICK, Chicago, said that the differential diagnosis of spinal cord tumor due to syphilis, as the gumma, had been omitted. He had seen several cases of spinal cord syphilis in Chicago.

DR. ARCHIBALD CHURCH, Chicago, said that he had seen four cases of tumor of the spinal cord, and that the most distinctive symptoms in all had been those of sensation. He regards it as exceedingly difficult to diagnose tumor of the spinal cord, and considers this largely tentative, unless confirmed either by surgical intervention or post-mortem examination. He related a case that had been operated on by Dr. Fenger, where the tumor seriously invaded the cord and produced a destructive myelitis.

DR. FRANK P. NORBURY, in closing, said the three cases reported by him had come under his observation during the last twelve years; and tumor of the spinal cord is a comparatively rare affection, there being only some 220 cases found in medical literature.

CALIFORNIA AS A HEALTH RESORT.

DR. J. H. HOLLISTER, Chicago, in a paper on this subject, considered: persons to be benefited; the locations suited to their various needs; and the proper care of such individuals. No climate in and of itself is curative, but the power for recovery must be inherent with the patient, as the environments at best are only helpful. With certain recuperative powers in the individual, the conditions which may best promote recovery are: a dry soil, with freedom from soil exhalations; a mild atmosphere, pure in quality and nearly uniform in temperature; exposure, with personal comfort, to continuous days of sunshine; wisely directed daily physical exercise; the residence isolated from crowded apartments, with good ventilation, proper drainage, and plenty of sunlight exposure; a liberal bill of fare, well selected and properly cooked; pleasant social relations and diverting pastimes. These are the ideal factors which promise most of helpfulness, so that in no single locality can one expect to unite them all, but such ideal conditions may be more nearly approximated in California than in any location with which we are familiar.

EVERY-DAY HEADACHES.

DR. HUGH T. PATRICK, Chicago, read a paper on this subject. He said that every-day headaches are those of eye-strain, migraine, neurasthenia, infection and intoxication—fever, constipation, indigestion, alcohol, etc. Those from migraine and neurasthenia are incomparably the most frequent, but the headache of the latter is not really a head pain, but nearly always a cephalic distress. The peculiarities, causes, and treatment were considered and several illustrative cases cited. Migraine, if not the most frequent headache, is the most often misunderstood, and its prevalence, nature, cause, peculiarities and variations were discussed; the diagnosis and treatment given, also illustrative cases narrated.

DO WE HAVE SMALLPOX?

DR. H. C. MITCHELL, Carbondale, discussed this question, now that we have an epidemic of smallpox, so mild in character that its fatality is almost *nil;* when such a state of affairs exists, we can rest assured that the diagnosis of smallpox will be questioned by the average physician and laity. The doubt manifested as to the diagnosis of the present epidemic is not because the symptoms are not identical with those of former epidemics, but because of its mildness and low fatality. The mildness of the disease can not be due to its having originated in a tropical country, because it has been clearly shown that in Cuba, where it is supposed to have started, the death-rate was relatively large. It can not be due to climatic conditions in our own country, because the disease prevails in the same mild type both North and South. He believes that this explanation may be offered: The disease is produced by several germs which differ as to the character of their virulency; for example, the pus-producing ones—streptococci and staphylococci. Or that it might be explained

on the hypothesis that smallpox, like measles, diphtheria, scarlet fever and similar diseases, often appears in mild form. This may not be a satisfactory explanation, because in these diseases, when they appear in their mildest forms, there will occasionally be some malignant cases and deaths, while in this instance we have a more fatal disease than any of the others mentioned that has been running for three years with practically no death-rate.

TREATMENT OF THE OPIUM HABIT BY THE BROMID METHOD.

DR. ARCHIBALD CHURCH, Chicago, read a paper on this subject, and said that in the *British Medical Journal*, July 10, 1897, Dr. N. Macleod, of Shanghai, reported seven cases which he had treated by what he called the "bromid sleep." Briefly, the purpose of this treatment is to stupefy the patient utterly for a number of days, during which time the opium is rapidly withdrawn, with also recovery from the physical disturbance secondary to its withdrawal. Macleod states that early in 1897 a neurasthenic woman, addicted to the use of morphin for nine years, by accident, had administered to her 2½ oz. of sodium bromid in something over two days. A profound sleep was induced, lasting several days, and when its effect wore off the craving for morphin had ceased and with it the various disturbances which had led to its use. A few months afterward a pilot, who was addicted to morphin and alcohol, agreed to try the effect of the treatment; no suffering was experienced during the withdrawal of the morphin, craving for which, as well as for alcoholics, disappeared on recovery from the bromid sleep.

He also gave the histories of two other cases treated by the Macleod method: in the first, the result was excellent; the second, which might have been a successful result, so far as the bromid treatment was concerned, terminated fatally, perhaps by the bromid aggravating a nephritis. The method of administration, which has been gradually developed as the result of the experience of Macleod and his own observations, was formulated thus: The drug should be given only in the daytime; 120 grains of sodium bromid in a half tumbler of water, every two hours, until an ounce is given in the same way, and this may be sufficient, or it may be necessary to continue the doses in the same way on the third day. Macleod says a safe rule is to cease the administration of the bromid after twenty-four hours, when drowsiness is so profound that the patient can not be aroused, or when aroused is incoherent. If the sleep continues or becomes deeper, no more bromid will be needed. It is to be remembered that the bromid acts in a cumulative manner. After the second or third day, when the bromid is withdrawn, the drowsiness, in some cases actually coma, tends distinctly to deepen for forty-eight hours, so that the fully-developed sleep presents a rather alarming condition to any one not familiar with it. For two or three days there is difficulty in feeding the patient, and swallowing is sometimes impossible, so that rectal alimentation is required. During this treatment, there is apparently a tendency to aspiration pneumonia, so that feeding by the mouth becomes doubly dangerous. Any septic condition in the pharynx or in the antra communicating with the mouth should contraindicate the treatment. The poisonous effect of the bromid apparently falls on the respiratory and cardiac centers, so that a weak heart or impaired pulmonary conditions would furnish reasons against the method. From the case of nephritis, that he had reported as terminating fatally, it is strongly suggested that bromid of sodium in large quantities acts harmfully upon the kidneys, if they are diseased, and therefore any degree of nephritis should be a contraindication to this line of treatment. Three deaths occurring in twelve cases, although in each instance attributable only remotely to the bromids, and occurring where it had been used in extraordinary doses—doses that can no longer be advised—show that the plan of treatment is very far from being simple and without danger. However, as compared with the difficulties of the ordinary methods that are pursued in correcting the addiction to morphin, it seems to be of very definite value in well-selected cases; and can then be used without hesitation, under appropriate safeguards.

(To be continued.)

Association of American Physicians.

Twenty-sixth Annual Meeting, Washington, D. C., May 1-3, 1900.

President, Dr. E. G. Janeway.

ACID INTOXICATION.

DR. C. A. HERTER, New York City, in a paper on "Experimental and Clinical Study of Acid Intoxication," referred especially to the presence of oxalic acid and oxalates in the urine, and said that animals kept on a mixed diet have 67 mg. of oxalates in twenty-four hours' urine, while those on a diet of milk are free from oxalates; and that dogs fed on a sugar diet in the course of a few weeks are taken with intermittent diarrhea and gastric disturbances, with oxalates in their urine, and that all this goes to show that the oxalates are formed within the body. He concludes that this is done in the stomach and that it is probably due to an organized ferment.

DIABETES.

DR. J. B. HERRICK, Chicago, presented a paper on this subject and spoke of the low specific gravity of the urine in some cases, it being influenced by the large amounts of fluids taken. He has had cases with specific gravity as low as 1004, and has found albumin and casts not uncommon in diabetic urine, the latter being unusually abundant preceding coma.

URIC ACID AND EPILEPTIC ATTACKS.

DRS. JAMES J. PUTNAM and F. PFAFF, Boston, presented a paper entitled "Communication on the Relation of Uric Acid Secretion to Epileptic Attacks," and said that there is no difference in the amount of uric acid secreted during or between the paroxysms.

CASE OF ACUTE ASCENDING PARALYSIS, SHOWING HEMATOPORPHYRINURIA.

DR. CHAS. G. STOCKTON, Buffalo, N. Y., read a paper on this subject, in which he reviewed the history of a case of this quite fully. He said that the claret-colored urine was not due to any of the indican bodies, for they were absent, but that there was a relationship of the pigment to the inflamed condition of the spinal cord.

INFREQUENCY OF TRANSMISSIBLE DISEASES IN CHILDHOOD.

DR. A. C. ABBOTT, Philadelphia, presented a paper on the "Relative Infrequency of Acute Transmissible Diseases During the First Year of Childhood; with a Discussion of the Probable Reason for the Same." By means of a number of statistical charts, he was able to show that acute infections, especially of measles and scarlatina, are relatively rare in children under one year of age, and very rare in those less than six months old. He thinks that this immunity is due to the mother's milk.

RECURRENT VOMITING IN CHILDREN.

DR. J. P. C. GRIFFITH, Philadelphia, in a paper on this subject reviewed the histories of four cases, and said that recurrent vomiting, often called cycle vomiting, is too little discussed. Of the cases under consideration, the third and fourth were fatal; the first, mild, and the second, very severe, but recovery took place. The symptoms were as follows: vomiting almost incessant, with obstinate constipation, not relieved when the bowels were opened; exhaustion marked, but no abdominal pain; they appeared to be at the point of death, but quickly recovered.

DR. CHAS. G. STOCKTON said that the character of the vomit had not been given and that in his cases it was pure gastric juice.

DR. JOHNSON, Washington, D. C., had a case in which the vomit was like coffee grounds.

PULMONARY TUBERCULOSIS.

DR. E. L. TRUDEAU, Saranac Lake, N. Y., presented a paper entitled "Sanitarium Treatment of Pulmonary Tuberculosis and Its Results," in which he spoke of the advantages of the sanitarium treatment over the old routines, and mentioned as especially necessary: good climate, well-regulated open-air life, proper food and care in regard to daily habits. He said that the incipient stage of pulmonary tuberculosis is not generally recognized; and that the X-ray, together with the tuberculin test, are valuable in aiding to make a diagnosis.

DR. NORMAN BRIDGE, Los Angeles, said that three-quarters of his cases were managed best by treatment outside of the sanitarium.

DR. FRANCIS KINNICUT, New York City, reported a case of phlegmonous gastritis and exhibited some specimens.

ORGANISM AND LESIONS OF ACTINOMYCOSIS.

DR. J. H. WRIGHT, Boston, considered this subject, and said that this disease goes frequently unrecognized, and it is much more common than one would suppose. He considers it a subacute or chronic process, and spoke of the difficulty in making cultures of these organisms; he showed a number of specimens by lantern slides and said that it was not necessary to stain a fresh specimen of one of the rays in order to make a diagnosis.

SPOROTHRIX.

DR. L. HEKTOEN, Chicago, read a paper entitled "A New Pathogenic Fungus" (Sporothrix), which was first described by Schenck, and gave the history of a patient who was inoculated with this new organism by a punctured wound of the fingers, due to an iron nail, and said that several different cultures produced the same organism.

PERNICIOUS ANEMIA.

DR. RICHARD C. CABOT, Boston, presented a clinical study of 110 cases; and in speaking of its etiology said that the disease is more common in males, that late middle life is predisposed to it, and that the menopause bears no relationship to the disease. The symptoms are relatively constant in all of his cases, viz., hemorrhage of the nose and mucous membranes, muscular weakness, shortness of breath, gastrointestinal irritation, which is paroxysmal, some slight fever, about 99 F., frequent myelitis together with the blood changes. He thinks that treatment is hopeless, that the average duration of the disease is from two to three years.

BLOOD FINDINGS IN PERNICIOUS ANEMIA.

DR. FRANK BILLINGS, Chicago, read a paper entitled "Report of Cases of Pernicious Anemia with Special Reference to the Blood Findings." He showed some very interesting charts that illustrated the rise and fall of the polichromatophiles and the nucleated red corpuscles, together with the color-index, and brought out their relationship to the periods of improvement and decline. He spoke also of the increased number of eosinophiles accompanying apparent improvement.

NOTES ON CASES OF PERNICIOUS ANEMIA.

DR. F. P. HENRY, Philadelphia, reported five cases, three of which had autopsies; some had paralysis of the extensor muscles of the extremities, though this is rather uncommon. His theory is that in this the blood of man reverts to that of the cold-blooded animals.

DR. H. A. HARE, Philadelphia, said that he thinks a great many changes in the form of the blood-corpuscles takes place in health, and suggested work in this line, because we know more about the pathology of blood than about its normal changes.

DR. WM. H. THOMSON, New York City, spoke of Hunter's theory of pernicious anemia, which makes it due to suppuration at the roots of the teeth.

DR. W. H. THAYER, Baltimore, Md., said that he thinks that a diagnosis could not be made by the blood count alone.

DR. DACOSTA said that the length of remissions is often as long as eight and ten months.

STRONGYLUS INTESTINALIS.

DR. W. S. THAYER, Baltimore, Md., gave a report of "Two Cases of Diarrhea Associated with the Presence of Strongylus Intestinalis in the Stools," and said that the character of the diarrhea was interesting inasmuch as it was never painful, and appeared to be the first described in the United States.

FILARIA.

DR. W. T. COUNCILMAN, Boston, read the report of a case of filaria and showed specimens of the adult parasite. The patient, who was a native of Barbados, had several live adult filaria in his left testicle and also in the blood.

THE ELIMINATION OF DELETERIOUS SUBSTANCES FROM ANTITOXIC SERA.

DR. W. H. PARK, New York City, read a paper on this subject, in which he said that antitoxins are of the nature of globulins, because they give the same clinical reactions, and when there is an increase in the number of toxins in the blood there is also in the globulins. He spoke of the deleterious effects that the sera of certain animals have on the individual and suggested that only those animals be used which by experiment have been found not injurious.

VARIETIES OF DIPHTHERIA BACILLUS.

DRS. F. F. WESTBROOK, WILSON and MCDANIEL, Minneapolis, Minn., presented a paper on this subject. Dr. Westbrook illustrated with several water-colored charts, and divided the diphtheria bacilli into three groups, viz., granular forms, barred forms and solid color forms, and said that some of them are able to change their shape through morphological development.

ADDISON'S DISEASE.

DR. W. W. JOHNSTON, Washington, D. C., presented a case of Addison's disease that has been under treatment with suprarenal extract. The patient has shown a marked improvement by an increase in weight, though this is due as much to rest as to the treatment.

VENOUS THROMBOSIS AS A COMPLICATION OF CARDIAC DISEASE.

DR. WM. H. WELCH, Baltimore, Md., considered this subject and reported four cases. Cultures taken from the thrombus after death were infected, while cultures from other parts of the body were not. He reviewed the literature of twenty-three cases.

CIRRHOSIS OF LIVER.

DR. SIMON FLEXNER, Philadelphia, presented a paper entitled "The Nature of the New Tissue in Cirrhosis of the Liver and Its Distribution." He said that the pathology is not well understood, but that the introduction of special stains has made the study of elastic tissue possible; and that in studying the distribution of the elastic tissue, staining has been combined with a process of digestion and in this way he has been able to separate some of the different kinds of connective tissue.

MULTILOCULAR CYSTOMA OF PANCREAS.

DR. R. H. FITZ, Boston reported a case in which the cysts were successfully removed by operation, and the patient recovered.

DEGENERATED ECHINOCOCCUS CYSTS OF PLEURA.

DR. CHAS. CARY, Buffalo, N. Y., presented a paper on this subject and told of a patient who had never been out of the United States.

MINOR FORMS OF CARDIAC DILATATION.

DR. BEVERLY ROBINSON, New York City, discussed this subject and spoke of three types in which the disease is found, viz., the young anemic girl, the fat woman, and the nervous woman about the age of 40.

GRAVES' DISEASE WITHOUT EXOPHTHALMIC GOITER.

DR. WM. H. THOMSON, New York City, read a paper on this subject and said that it is a distinct disease, not an undeveloped exophthalmic goiter; that tachycardia is the first symptom to appear and the last to disappear; and that there were often sensory and motor disturbances. He spoke also of the gastric disturbances and said that he believed the disease to be of a gastrointestinal origin.

PERICHONDRITIS OF LARYNX.

DR. M. H. FUSSELL, Philadelphia, discussed this subject and exhibited a patient and a specimen. He said that only 7 per cent. of cases of typhoid fever are thus affected.

APPENDICITIS AND TYPHOID FEVER.

DR. H. A. HARE, Philadelphia, read a paper entitled "The Attitude of the Physician and Surgeon to Appendicular Symptoms, Complicating Typhoid Fever," and cited cases that he has had simulating appendicitis, which after twenty-four hours became typical typhoid fever.

Southern Medical Association.—This Association met in Sparta, Ill., May 11 and 12. The following officers were elected for the ensuing year: president, F. T. Grinstead, Cairo; first vice-president, H. L. Gault, Sparta; second vice-president, A. A. Dean, Campbell Hill; secretary, A. B. Ormsby, Murphyboro; assistant secretary, Emmett Bottom, Murphyboro; treasurer, A. Tilford, Menard.

American Gynecological Society.

Twenty-fifth Annual Meeting, Washington, D. C., May 1-3, 1900.

President Dr. George J. Englemann, of Boston, in the chair.

OPERATION FOR PRIMARY VAGINAL CARCINOMA.

DR. WILLIAM R. PRYOR, New York City, read a paper on "Operation for Primary Vaginal Carcinoma, Applicable also to Cancer of the Rectum in Women," in which he mentioned the fact that cancer of the vagina is very rare, involving usually its posterior wall, and extending underneath the rectum, then to the vaginal structures and to the uterus. He described the operation as performed by him in two cases, where he removed all the organs in which recurrence was apt to take place, and worked from above downward. The steps being: 1. The general preparation of the patient. 2. The incision from the umbilicus to the pubes. 3. The ligation of the vessels and ligaments. 4. Dissection of the bladder from the cervix and entrance to the vagina anteriorly. 5. Removal of the vagina and the entire rectum. 6. Ligation of the obturator artery to prevent anastomotic circulation being formed.

The technique of the operation was illustrated by drawings.

DR. PAUL F. MUNDÉ considers it fortunate that these cases are rare; he has never seen but two, and says that he has curetted and cauterized, but does not think that radical work repays for the slight benefit received.

DR. R. S. SUTTON, Pittsburg, Pa., had seen but one case in thirty-four years, and does not favor radical operations. He thinks that the pathology of cancer should engage our attention instead of a new method for its removal.

DR. E. VAN DE WARKER thinks that nothing has been gained by operations for cancer.

DR. E. E. MONTGOMERY, Philadelphia, believes that the great frequency of recurrence of malignant disease, where it involves the vagina, and extends into the parametrial tissue and the broad ligament, makes questionable the operative treatment. He has seen patients in whom he felt that an operative procedure would result favorably, but in whom there was an early return of the disease, while in other cases of extensive destruction of the cervix, the patients lived several years without recurrence.

FECAL FISTULA.

DR. I. S. STONE, Washington, D. C., read a paper on this subject. He regards fecal fistulæ one of the most distressing and annoying of post-operative sequelæ, and thinks that possibly the larger number of them follow in the wake of appendiceal abscess, and that there can be no routine treatment. Mention was made of certain methods that he believes are followed by the best results, for instance in cases in which the cecum and ascending colon are greatly thickened and firmly bound by adhesions, a section of the ilium may be taken as near the caput coli as convenient and transplanted, or an end-to-side anastomosis may be made to the transverse colon. He gave his successful experience in two cases of recto-abdominal fecal fistulæ of long standing. In all of these that are persistent any foreign body must be removed, and all attempts at skin closure, by cauterization or by curettement are generally successful; and in all cases where a fistula connects with the superficial coil of intestine, the method of Greig Smith may be tried before resorting to radical operation. Recto-abdominal fistulæ should, if possible, be converted into recto-vaginal fistulæ, and closure of the tract secured before temporary fistulæ are allowed to close.

DR. A. F. CURRIER, New York City, has seen but one case of fistulæ of the small intestine and this was finally cured by section of the small bowel. He believes that in these cases, including the small intestine, it is not wise to wait, and in those situated low down, he does not advocate hasty operative procedures, having seen a number of cases where by waiting, Nature instituted a cure.

DR. C. P. NOBLE, Philadelphia, has seen a number of fecal fistulæ, all but four of which closed spontaneously, three remained obstinately open, and one recovered after operation.

DR. A. P. DUDLEY, New York City, said that in operating for cancer and in breaking up the adhesions, he has broken the small intestine in two and put in a Murphy button, that was afterward recovered, having worked down to the rectum, and out through the fistula behind the uterus. Although he had expected the woman to die, the fistula healed and she recovered.

DR. P. F. MUNDÉ referred to three cases of fistulæ resulting from the intentional opening of the intestines in order to relieve an obstruction to the bowels that was tending to general peritonitis following some abdominal operation. He agreed with Dr. Currier that in fistula in the small intestine it is well to wait, but in the same condition in the large bowel, the abdomen should be opened.

DR. M. D. MANN believes that we are almost always obliged to open the abdomen in fistula of the small intestine, and that further treatment will depend on the opening; if it is close to the mesentery it will be dangerous to sew it, and if large it should not be sewed for fear of stricture.

DR. I. S. STONE, in closing, said that the Society seems agreed as to the danger of opening the abdomen in these conditions, and that it should be done only after every superficial method has been employed.

DR. W. L. BURRAGE, Boston, reported 137 operations which were performed on diseased uterine appendages, with the object of preserving one ovary, or portion or portions of one or both ovaries with their tubes, or as much of the tubes as was reasonably normal in appearance. He gave the results in 85 of these, the table being divided into the more severe and the less severe. By comparison it was found that in the majority of the former gonorrhea and syphilis were more prevalent, that the symptoms had resulted more frequently from difficult labors, or abortions, and that the tubes were closed; whereas they were open in all but one of the less severe. Pregnancy followed operation in four of the more severe, and in 11 of the less severe. Anatomical cure was reported in 33 out of 57 cases, and symptomatic cure in 60 out of 85. In women of both classes, who have borne children, subsequent pregnancy may be expected in 35 per cent., whereas in previously sterile women, it may be looked for in only 5 per cent.

DR. A. P. DUDLEY said that in a case of double pysoalpinx he had taken the tube off and left the ovary hanging, then brought the uterus up and split the fundus in two; and he was absolutely sure that the ovary had grafted, and that the patient is now menstruating every twenty-eight days. He had had five cases in all, in which, not being able to save any of the tubes, he had planted the ovary, and in all he was sure it had grafted, as every portion of the discharging stricture had been analyzed.

DR. H. N. VINEBERG, New York City, said that the class of cases in his hands, which had given the poorest results had been those in which the lesions had not been very severe.

DR. M. D. MANN, Buffalo, N. Y., mentioned a case in which one tube and ovary were entirely removed, and the others were in bad condition. The tube was opened, and after breaking up the adhesions, left, together with the ovary. Four children have since been born, three girls and one boy. This is interesting in the matter of sex in regard to one ovary.

DR. J. RIDDLE GOFFE said that he was approaching his one hundredth case of conservative work on appendages, which had been very largely through the vaginal, rather than the abdominal, incision.

DR. W. L. BURRAGE, in closing the discussion, said that he has operated twice in cases where there was no symptomatic and anatomical cure, and that there were several other cases, where operation was needed but the patients would not submit and he had used the cautery. He has had in his experience pronounced neurasthenia in patients past the age of 35 years, and in those cases either complete removal or no operation is indicated, as they do not do well after resections.

INTERNAL SECRETION OF OVARY.

DR. A. W. JOHNSTONE, Cincinnati, Ohio, in a paper on this subject, said that retained secretions are the cause of nearly all conditions. For if it is a lack of an internal secretion that

causes the nervous menstruation disturbances of the menopause, why is it that delayed menstruation in a child-bearing woman will produce identically the same symptoms as those of the menopause? This is apparent to all in our every-day work, and has occurred so often that he believes that if a woman's menstruation is delayed for any reason except pregnancy, she is apt to have symptoms closely approximating those of the change of life. This leads him to believe that the internal secretion of the ovary is a myth.

THE TECHNIQUE, INDICATIONS AND ULTIMATE RESULTS OF SUTURING THE ROUND LIGAMENTS TO THE VAGINAL WALL FOR RETROVERSIONS AND FLEXIONS OF THE UTERUS.

DR. HIRAM N. VINEBERG, New York City, described in detail the technique because he felt that the method was not correctly understood. The patient is prepared as she would be for a vaginal hysterectomy, and when the uterus is unusually large and heavy, or the utero-rectal ligaments are put on high tension by anteverting the uterus, it is wise to employ a single uterine fixation suture in addition to the round ligament sutures. To avoid the possibility of dystocia in the event of pregnancy this should not be placed too high up on the uterine wall. Any operation on the cervix that may be called for is now done, and the posterior vaginal wall or perineum subjected to any plastic operation that may be deemed necessary. The patient is kept in bed for twelve days, when the round ligament sutures may be removed and also the uterine sutures, if they are present.

In 64 per cent. some surgical work on the adnexa was found necessary. In 53 consecutive cases the results show no mortality; in 48 cases convalescence was uneventful, and in only 1 was there absolute failure, the uterus being found in retroversion six weeks after the operation.

DR. A. F. CURRIER said that fixation can be done through the abdomen, and his plan is to limit the operation to those cases in which a later one is necessary.

DR. R. S. SUTTON hopes that soon the abdomen will not be opened as often as it is now, and that pelvic diseases may be attacked almost exclusively by the vaginal route.

DR. J. W. BOVÉE considers that the Alexander operation possesses an advantage over the shortening, inasmuch as it does not require the opening of the peritoneal cavity.

DR. J. RIDDLE GOFFE expressed the belief that we will not have to wait long until all pelvic work will be done through the vagina. He believes that laparotomy is not justifiable until it is found impossible to relieve the patient by a vaginal incision. In only one case within the last few years has he been compelled to resort to laparotomy to complete the work.

DR. HIRAM N. VINEBERG thought that the cases may require to be selected for the vaginal route, and that some are best approached from the abdomen.

PREGNANCY IN LABOR.

DR. J. CLARENCE WEBSTER, Chicago, offered for inspection some casts illustrating the anatomy of pregnancy in labor, also models used in gynecologic teaching. Many clinical observations made by him in regard to the topography of pregnancy had been reproduced in frozen sections.

DR. BUCKMASTER spoke of a method of reproducing the process of an operation by paraffin.

ANASTOMOSIS OF URETERS WITH INTESTINES.

DR. REUBEN PETERSON, Chicago, considered this subject and gave a historical and experimental research. He presented first an exhaustive review of the literature, then a description of his experiments, from which, together with the work of others, general conclusions were drawn. The most striking fact is the exceptionally high mortality attending the operations; out of 60 dogs operated on by the various experimenters, where one ureter was implanted in the intestine, there was a mortality of 61 per cent.; out of 65 dogs undergoing bilateral ureteral anastomosis, there was a mortality of 87 per cent. The majority of the deaths resulted from peritonitis. The method which calls for the least amount of suturing of the ureter itself is found to give the best results. He gave a short abstract of the 28 uretero-intestinal anastomoses in man, showing that the primary mortality of 32 per cent. is high.

EVOLUTION OF TECHNIQUE IN TREATMENT OF FIBROID UTERINE TUMORS.

DR. H. A. KELLY, Baltimore, Md., in this paper referred to his method of controlling the uterine vessels, which he considers a remarkable advance on any that has preceded. He briefly detailed his method of dealing with very difficult cases, such as large adhering tumors, and gave the following ways of dealing with them: by median saggital bisection of the uterus with the tumor; by a corona bisection of the uterus with its cervical portion; by a bisection of the tumor alone. The principle of the operation is the same in all cases. The best method of enucleation is to seek at first to isolate and ligate the ovarian vessels of one side and to expose the uterine vessels, then cut across the cervix, clamp the opposite uterine artery and the round ligament, and lastly, the ovarian vessels.

GYNECOLOGY IN THE LAST QUARTER OF A CENTURY.

DR. GEORGE J. ENGLEMANN, Boston, in his presidential address, gave a historical review of the various periods in gynecology in the last quarter of a century. The trend of modern medicine is toward research for cause and prevention, and the main cause of suffering is found on the great waves of a woman's life—puberty, menstruation, labor, and the menopause.

INTRA-ABDOMINAL AMPUTATION OF THE UTERUS; A MODIFICATION OF HYSTERECTOMY.

DR. F. H. DAVENPORT, Boston, in a paper on this subject, stated that the indications for hysterectomy are quite well established, and that interest is now centered on the technique. In a young married woman, whenever possible, he prefers to leave the cervix, and for suitable cases, chooses the abdominal route; he operates by the vagina for cancer, either of the cervix or body. The essential feature in which his method differs from that usually employed is that the uterine arteries are not ligated.

KELLY'S METHOD OF REMOVING THE FIBROID UTERUS VIA ABDOMEN.

DR. A. LAPTHORN SMITH, in speaking on this subject, said that the advantage of Kelly's method lies in the fact that the operation is commenced on the easy side, and after securely tying the ovarian, round ligament and uterine arteries, and separating the bladder, we cut across the cervix and roll the tumor out, thus obtaining plenty of room to tie the arteries from below upward. Another great advantage is that there is much less danger of injuring the ureters. He lays even greater stress than does Kelly on the importance of feeling for each individual artery, and tying it before cutting it, and then putting on a second ligature. He strongly advises the use of chromicized catgut, and just as firmly opposes leaving the ovaries and tubes and myomectomy, and he holds the opinion that all fibroid uteri should be removed as soon as discovered, because a woman with a fibroid is liable not only to hemorrhage, but to reflex disturbances of digestion and circulation. He objects to a preliminary curetting, because it is unnecessary, and when done is seldom effectual, and also to vaginal morcellement which is not to be compared with Kelly's method.

He strongly advises the closure of the abdomen with through-and-through silkworm gut sutures, left in for three or four weeks, for then, if not tied too tightly, and redressed with boracic acid in abundance, the one dressing, or at most two, will suffice.

BRONCHIAL DISEASE AND ETHER ANESTHESIA IN ABDOMINAL SURGERY.

DR. THADDEUS A. REAMY does not think that bronchial disease is invariably a contraindication for anesthesia in abdominal surgery. He said that his personal experience with surgical anesthesia covered 8000 cases; his obstetrical work, 3000 deliveries; and that 2000 of these were under chloroform anesthesia. Although he much prefers ether, he has never lost a patient under either ether or chloroform. He mentioned as the proper conditions in the administration of both, the preparation of the patient; the temperature of 98 to 100 F. in the operating room, where the anesthetic should be administered; the placing of the chest and trunk of patient lower

than the pelvis; and of the pure quality of the ether, and the inhaler that must permit of the reinhalation of the vapor, no more to be used unless the operation lasts more than forty minutes. He has witnessed but one case in which pneumonia was probably induced by ether inhalations, but has seen bronchitis, both acute and chronic at once cured as a result. He would not employ ether in the presence of emphysema.

DR. MALCOM MCLEAN emphasized the importance of the high temperature of the room and spoke against any confusion that would make it necessary for more ether than would otherwise be required.

DR. T. A. REAMY regards conversation in the room of great disadvantage. His rule is to allow no one to speak until the patient is unconscious. He emphasizes the fact that the room must be hot and the ether given in the operating room.

RELATIONSHIP BETWEEN DYSMENORRHEA AND APPENDICITIS.

DR. ARCHIBALD MCLAREN, of St. Paul, Minn., considered the influence of pelvic and inflammatory conditions on menstruation. In 200 laparotomies, he had 158 cases where inflammatory appendages had to be removed and in 40 per cent. the appendix showed evidence for removal, but does not advocate doing so always. The technique of his earlier operations was given; in later years he has adopted the method of Kelly.

DR. A. J. C. SKENE said that the relation of appendicitis to dysmenorrhea was a new idea to him, and explained certain observations for which he had previously been unable to account.

DR. A. LAPTHORN SMITH'S experience coincides with that of Dr. McLaren. He had often been called in consultation with two doctors, one being of the opinion that the condition was salpingitis, and the other appendicitis; and since he has had more experience he agrees with both.

PELVIC ASYMMETRY.

DR. PHILANDER A. HARRIS, Paterson, N. J., demonstrated the utility of a certain chart for the determination of pelvic asymmetry by a very simple method of external pelvimetry. He exhibited the instrument and urged a more frequent use of the pelvimeter, and also showed photographs illustrating the advantages of employing a certain background in the photography of pathologic specimens.

The officers for 1900 are: president, E. Van de Warker; vice-presidents, Charles Jewett and R. B. Maury; secretary, J. Riddle Goffe; treasurer, J. Montgomery Baldy. Chicago was selected as the next place of meeting.

German Congress of Internal Medicine.

Wiesbaden, April 21, 1900.

ENDOCARDITIS.

The two principal subjects discussed: "Treatment of Pneumonia" and "Endocarditis," were ably handled by Koranyi, Pel and Litten, bnt nothing new was presented except Litten's classification of endocarditis. He rejected the anatomic divisions: verrucose, ulcerative, etc., as endocarditis may occur and kill before vegetations or ulcerations have appeared, and they are not characteristic of any clinical manifestation. He proposes a classification based on the clinical evolution and the degree of virulence of the micro-organisms, distinguishing three varieties: the benign, the malignant nonpurulent, and the malignant septicopyemic. Benign endocarditis occurs in the course of an infectious disease: rheumatism, chorea, gonnorrhea, purpura, typhoid or the eruptive fevers, diphtheria, pneumonia or tuberculosis, or it may be of ex-influenza or traumatic. It is not a morbid entity but merely a localization of the infective process. The anatomic manifestations may be verrucose or ulcerative, and there are usually metastases, which may be simple bland infarcts, or suppurative emboli in consequence of the participation of pyogenic micro-organisms. If the agents of the infection are unusually virulent they may induce the second variety, malignant nonpurulent endocarditis, which is generally fatal, while the benign terminates in recovery. The third variety, malignant septicopyemic endocarditis, is merely one manifestation of the general invasion of the organism. Traumatic endocarditis may develop sooner or later after a trauma, even without external manifestations of injury to the thorax, and may remain benign and heal, or may lead to chronic valvular defect. It is also liable to become complicated with secondary pyogenic infection and assume the malignant septicopyemic form. Wassermann believes that any kind of bacterium settling on the endocardium may induce endocarditis, and that the benign or malignant character is not due to the virulence of the germ, but rather to finer biologic processes such as Ehrlich has demonstrated in his research on the hemolysins. His, of Leipsic, reported observations in which acute gonorrhea had an aggravating effect on pre-existing valvular affections. Jurgenssen asserted that the share of the myocardium in the cardiac complications of infectious diseases has been underestimated, and remarked that the character of acute articular rheumatism has altered in his experience of late years. There is less fever and swelling of the joints. and the pains extend through the diaphyses. The course is more insidious; the functional disturbances of the heart occur earlier and more frequently; respiration is accelerated and he has observed nervous phenomena, choreic, cataleptic or reflex.

EXPECTORANTS.

In discussing expectorants, Naunyn recommended potassium iodid in pneumonia and rebellious bronchitis with certain limitations, and Senator reported extremely favorable results from the use of hot water, which he administers in bronchitis and rebellious catarrh in the form of hot alkaline mineral waters.

CARCINOMA OF ALIMENTARY CANAL.

Boas reported that he had become convinced from his study of two hundred cases of this affection that the influence of heredity is much overrated. On the other hand, his belief in the noncontagious character of carcinoma has been rudely shaken by twenty-two observations on its occurrence in persons living together. He proclaimed the necessity of prophylactic measures, especially in regard to the dejecta of carcinomatous subjects, and articles they have used, dishes, toilet articles, etc. Meat-eaters predominate in his experience, but vegetarians are quite frequently affected. Alcoholic antecedents were noted in 40 per cent. of his observations. Traumatism, he adds, may unmistakably favor or arouse carcinoma of the alimentary canal, and likewise phthisis, diabetes, and syphilis.

New York County Medical Association.

CONTINUATION OF DISCUSSION ON DR. HOWARD KELLY'S PAPER ON "THE PRESENT STATUS OF OPERATIONS FOR CANCEROUS UTERI."

(Concluded from p. 1220.)

DR. H. J. BOLDT, New York City—When your president requested me four months ago to take part in the discussion of Dr. Kelly's paper, I accepted with pleasure, not because I thought that I would be able to add to the value of the discourse, so far as treatment was concerned, because I knew that what the gentleman would speak about would be thoroughly weighed and studied, to enable him to contribute something of real value to the profession, but as I desired to add my opinion, based on the observation of a considerable number of cases. Fortunately the time given me has been sufficient to enable me to make an inquiry from all accessible surviving patients who have been under my care with cancer of the uterus.

The question as to what are the ultimate results in treating cancer of the uterus can only be answered intelligently, if the extent of the invasion of the cancerous neoplasm be defined in the individual case; the operator should differentiate these cases with regard to the prognosis, guiding himself by the ascertainable local extension. We must look on cancer of the uterus as a local disease in the initial stages; therefore, we are in a position to say that if the malignant neoplasm is diagnosed during such early stage, before it has gone beyond the uterus, the ultimate result as to final cure is good in the hands of an operator who is a master in the technique of performing hysterectomy. Unfortunately, however, it is but seldom that

patients are seen in the beginning stages; they do, however, increase in the practice of those who, on the slightest suspicious symptom, make a careful examination of such patient, and who, in all submitted to an abrasion of the uterine mucosa, have the scrapings carefully examined by a competent pathologist. The age, in giving a prognosis, must also be considered as an important factor; the older the patient, the better is the prognosis, always with the proviso that the case is one very favorable for a radical operation. Women under 30 years, unless the neoplasm is in its incipient stage, give an unfavorable prognosis as to ultimate freedom from the disease. Its seat has also a bearing on the prognosis. The most favorable cases are, so far as my own experience goes, malignant disease of the uterine body; next favorable, cancer of the vaginal portion; then cancer of the cervical mucous membrane. The most unfavorable variety is the cervical cancerous nodule.

The method usually adopted in citing the value of treatment for cancer of the uterus loses greatly by neglect of consideration of the points noted. It is obvious that it is an injustice toward any given therapy to quote, for instance, that of 100 cases of cancer of the cervix operated on by vaginal hysterectomy, 50 patients are alive after one year; 30 after 2; 10 after 3; 8 after 4; 1 after 5 years. For the purpose of arriving at an accurate prognosis, as to the ultimate results, we should know what the form or variety of cancer was; which part of the cervix was the seat of the neoplasm; how much progress the disease had made at the time of operation; the age of the patient operated on, and then the description of the operative technique adopted in the respective instance. As an illustration permit me to cite an instance: A nullipara, 26 years old, presented herself with an epithelioma of the portio vaginalis, twenty-seven months ago. The vagina was appreciably infiltrated about one-fourth of an inch from its junction with the cervix. The parametria were free on the right side; on the left there was a slight thickening of the base of the broad ligament, which did not impress me as malignant, on account of the lack of a board-like, unyielding hardness. After rapid removal of the readily breaking down neoplasm, with a sharp curette, and subsequent cauterization, the upper half of the vagina was detached and closed over the portio by a continuous suture; the bladder, with the ureteral terminations, was well pushed out of the field of operation by a large gauze strip; the parametria were ligated as far from the cervix as possible and the uterus removed *in situ*, with the adnexa. The patient is still free from any evidence of recurrence.

Suppose the technique would have been such as we frequently see employed even at this day; curetting of the disintegrated neoplasm followed by extirpation of the uterus, the operator keeping close to the cervix, for fear of injuring the ureters; I doubt whether the result obtained could have been achieved. Suppose even moderate malignant infiltration of the parametria had been present, then I do not believe that there would still be freedom from the evidence of a recurrence. The cauterization after curetting, with subsequent resection of the vagina and covering the malignant surface with the loosened portion, prevents the chances of an implantation or vaccination infection, to which George Winter has called attention. Again, the probability of a good ultimate result would be still better, if the patient's age, at the time of operation, had been double.

Let us view cancer of the supravaginal portion of the cervix for a moment. Experience has taught us that the peculiarity of cancer of the uterus is that, in its early stages, it will not encroach by dissemination to other anatomic segments or parts of the uterus from where it had its primary origin. A patient with beginning carcinoma of the cervical endometrium consults her family physician on account of leucorrhea and the discharge may occasionally be slightly intermixed with blood; the examination reveals an intact os externum of the portio, while about the vaginal portion nothing abnormal seems to present itself to the examining finger; she is dismissed with a prescription for some remedy like ergot or hydrastis canadensis and ordered to take douches. About three months later she is examined again. By that time a crater may have formed in the cervical cavity, the supravaginal portion be invaded in its entirety and the parametria affected; the probability is that it is too late at such a stage to do a radical operation with the prospect of a good ultimate result. Not infrequently such cases are sent to the specialist as beginning cases of cancer, whereas the beginning was four to five months previously, and that was the proper time for operation.

The patients who have a hard carcinomatous nodule in the supravaginal portion of the cervix do not present any symptom until the neoplasm begins to break down, and it is then always too late to do radical work, because the parametria are generally extensively involved; it is by mere accident that such patients are seen early enough to do a hysterectomy, which will promise a good ultimate prognosis. I can not emphasize it too strongly, that we should invariably think of malignant disease, and use every method known in arriving at a diagnosis, to make sure that cancer is *not* present before dealing lightly with the respective patient. The same precaution holds good for disease of the corporeal endometrium, causing slight atypical bleeding or prolonged menstruation. We should never be satisfied with doing a curetting if there is the *slightest* suspicion, unless the microscopic examination of the scrapings shows an absolutely negative result. In making such curetting, it should also be remembered that a dull instrument is inadequate and that the mucosa must be removed from *all* portions of the interior, including the uterine cornua. I have never seen a case in which, if the microscopic examination showed cancer in one part of the scrapings, no matter how small, the examination of the extirpated organ did not verify the diagnosis. True, sometimes opinions may differ, but this is not the fault of the microscope but rather of the examiner; it is also true that a patient may have cancer and nothing has been seen in the scrapings to show it; this again is not the fault of the examiner, but it is due to the operator, hence the precaution noted, to remove from *every* part of the lining membrane.

Let us now turn to the results obtained by the speaker from radical operations for cancer of the uterus. The operation has been performed 131 times, 5 by the abdominal route and 126 by the vaginal. From the latter method 8 deaths ensued, as the direct result of the operation, making nearly 6.35 per cent. direct mortality. These are to be divided into: 3 from shock—1 of the latter had an extensive cardiac lesion, as determined a few hours after death, this taking place about three hours subsequent to operation; the lesion consisted of myocarditis and calcareous degeneration of the aorta, which was not diagnosed before operation; 1 foreign body pneumonia, also determined, or rather, verified by autopsy; in 1 patient the ureters were probably tied—unfortunately an autopsy could not be obtained to verify or dislodge the suspicion; 3 died of septic peritonitis.

If we analyze the cases operated on for cancer of the uterus by vaginal hysterectomy, more than two years ago, we find the following result: total number of patients, 111; direct mortality, 5.4 per cent.; mortality from recurrent cancer, 34.2 per cent.; living with recurrence, 2.7 per cent.; deaths from other causes than cancer, 2.7 per cent.; no report obtainable, 30.6 per cent.; living and free from any evidence of recurrence, 24.3 per cent.

Year.	No. of cases.	Direct mortality.	Deaths known from recurrence of cause.	Deaths from other causes after recovery from operation and discharge of patient.	Living with recurrence.	No report obtainable.	Living and free from evidence of recurrence.
1887	5	1				1	1
1888	4		1			3	
1889	4						
1890	10	1					
1891	9	1		One from pneumonia.		4	1
1892	12		3	One myocarditis.		4	4
1893	18	1				8	4
1894	17	1		One nephritis.		3	5
1895	19	1	8			4	6
1896	4		1		1	1	1
1897	9		8				
1898	3		1		1		1
1899	7	1			2	1	3
1900	5	1					
Until April 1	126	8	40	3	6	35	31

So far as the radical operation by the abdominal route is concerned, I have not yet arrived at a positive opinion. Of the 5 patients operated on, 3 died as a result, although one of these was early in my career, when the Freund operation was first made known and the technique then employed could not be called radical, as now understood, if the method is employed at this day. Yet it must be conceded that abdominal hysterectomy as advocated by Riess, Clark, and Kelly, in this country, with extirpation of the retroperitoneal glands and lymphatics, is more grave and must necessarily give a larger percentage of direct mortality, and it is still a question with me whether the ultimate results from the operation will justify the procedure. When, in 100 cases operated on by radical measures, more than two years shall have elapsed from the time of operation, the statistics of that series will undoubtedly throw the balance in favor of one or the other method.

In instances of *beginning* cancer, in fact so long as the parametria are not involved, vaginal hysterectomy, properly performed, gives a fair percentage of ultimate recoveries.

It is my opinion that with the use of the hot iron, galvanocautery or paquelin cautery, the ultimate results will still be bettered. That this seems correct is illustrated by the published results of Byrne and Mackenrodt. With the limited personal experience which I have had with the method, I feel justified in agreeing with those authors.

In doing a vaginal hysterectomy, one must consider that it is for malignant disease, and must operate as far away from the uterus as can be done with comparative safety; the disintegrated structures should be rapidly removed with a sharp curette or spoon, and be thoroughly cauterized, charred, with a hot iron, before beginning the removal of the organ. The uterus should be removed *in situ*, unless a part of the vagina is resected and covered over the cervix. Subsequent to the operation, the administration of some form of arsenic is beneficial. The patients, during the first year after operation should be examined not less than once a month; during the second year, once in two months. Should there be the slightest infiltration of a suspicious character, then we should thoroughly cauterize with an actual cautery. One patient with cancer of the portio with a recurrence in the scar has been treated in this manner three times since her primary operation in 1896, with satisfactory result.

The question whether ligatures or clamps should be used in performing vaginal hysterectomy should not be dealt with in an offhand way; each has a place, especially so in hysterectomies for cancer; each has its advantages and disadvantages. The practical advantages which I have found with the exclusive use of the ligature method are: the patients suffer much less pain after operation, in fact it principally amounts only to the effects caused by the anesthetic; the convalescence is hastened materially—there is less liability to produce cystitis from catheterization. Theoretically it is a more surgical operation. For practical results, however, I have not found it superior to the clamp method, that is so far as the direct mortality and the remote results are concerned. What, on the other hand, are the advantages of clamps? The time consumed is greatly diminished—this is of very great importance with patients who are not robust; it is much easier to perform; one can generally work farther from the uterus. Theoretically, there is less danger of secondary infection—this, however, has not been borne out in practice in my hands.

I use ligatures exclusively, when the uterus is freely movable and if the vagina is sufficiently large, so that they need not be applied closely to the cervix, with the proviso that the patient's general condition is such that the greater amount of time consumed is of no consequence. When these requisites are not present, I deem the use of clamps safer, both for direct and remote results. The greatest danger of any vaginal method, when operating for cancer, is the injury of the uterus. This complication is more surely avoided by the abdominal method.

DR. E. E. TULL said that since 1890 he had operated on 20 cases of carcinoma uteri, in all of which the diagnosis had been confirmed by microscopic examination. Four of the patients are now living and 2 of them were operated on ten years ago.

DR. HIRAM N. VINEBERG said that out of about 12,000 cases of diseases of women seen by him in dispensary practice there has only been about 12 of cancer of the uterus. The majority of these women had borne many children and had suffered extensive lacerations; hence cervical laceration can not be considered an important factor in the production of cancer. He suggested modifying Dr. Kelly's method by making a longitudinal incision in the anterior wall of the vagina, through which the uterus can be delivered without any necessity for entering the peritoneal cavity posteriorly.

DR. GEORGE TUCKER HARRISON expressed the opinion that a patient should not be considered cured until five years have elapsed without recurrence. On this basis, 15 or 20 per cent. have been cured. The reason 80 per cent. or more were not cured was that the diagnosis had not been made early enough.

DR. JOSEPH E. JANVRIN said that four years ago he had reported 16 cases of cancer of the uterus that had originated in the cervix in which, by the despised and old operation of skinning out the uterus, he succeeded in saving 12 patients—at least at that time this number had been well for three years or more. Two of these are well and living at the present time; one is well after twelve years. In every instance the disease of the cervix was well marked, yet he secured 37.5 per cent. of cures. Of 4 in whom the disease had extended down on the vaginal mucous membrane, 3 were cured. Vaginal hysterectomy should be restricted in those in which the disease is only in the cervix or in the adjacent mucous membrane, and to adenoma and carcinoma uteri in their early stages. For all other cases he would advise abdominal or abdomino-vaginal hysterectomy.

DR. J. RIDDLE GOFFE said that he considers the vaginal operation the only justifiable one in cancer of the uterus, because of the liability to inoculate the freshly exposed tissues by other methods. His first objection to Dr. Kelly's technique is the turning of a carcinomatous cervix up into the peritoneal cavity, for this is simply inviting a dissemination of the disease in the peritoneum. He also objects to the method of quadrisecting the uterus, on the same ground. He would not hesitate to take out the whole vagina if this seems necessary in order to cut wide of the disease.

DR. RALPH WALDO believes that where the disease has lasted more than six months it is probable that recurrence can not be avoided. He prefers the vaginal operation, using ligatures.

DR. JOHN BYRNE, New York City—I deem it a privilege, no less than a pleasure, to have been afforded an opportunity of listening to this welcome and masterly résumé of personal experience by one whose opinions on any subject connected with surgical gynecology are worthy of every confidence and the fullest consideration. The difficulties oftentimes encountered in arriving at a corect diagnosis in the incipient or early stages of uterine cancer, and more especially where the disease has its origin in the fundus, are matters familiar to all, and the author's emphatic words touching the necessity for microscopic investigation in all doubtful cases are of the utmost importance, because while they sound the alarm, they preach the gospel of true conservatism.

Than cancer, in the broadest sense of the term, there is, perhaps, no other disease in the whole range of human afflictions more justly dreaded, nor is there another for the relief of which more so-called cures, from condurango to hysterectomy, have been lauded and resorted to, and from the days of Hippocrates to the present time. If the unhappy victim of this malady be a woman, and her sexual organs the seat of the disease, it is, indeed, hard to imagine a fate more pitiable, or an ebbing life so fraught with intolerable distress and utter hopelessness.

We are here to-night solely in the interest of these unfortunate victims of torture and despair, to consider, and, if possible, to decide, as to the best ways and means, through which we may contribute toward their relief and the prolongation of their lives. Such being our object then, it is to be hoped that the consideration of this important subject will not, as too often happens, be conducted in a slipshod or mere perfunctory manner, and that clincal facts, and not visionary theories, however plausible, shall constitute the basis and grounds of this discussion.

At this juncture in our friendly interchange of views, and as

time is precious, I fear the author of this valuable paper, as well as those who may have been impressed by the brilliant and attractive glitter of the work of one who concededly occupies a high place in the ranks of pelvic and abdominal surgery, and your humble servant, will have to shake hands, and for the time being, metaphorically speaking, part company.

With regard to the operative treatment of cancer of the cervix uteri, and to which limited sphere only my remarks apply, I have practically nothing to add to what I have stated over and over again, but more particularly in my critical analysis of the statistics of hysterectomy eight years ago, contrasting the results of this operation with those obtained by me through the agency of the electric cautery. I believed then, and I am now more than ever satisfied that if the time should ever come when the advocates of total hysterectomy, as the remedy *par excellence* for cancer of the cervix, can be coaxed, cajolled, or in any other manner persuaded to follow my method of operating, and then, and in this way only, become qualified to endorse or condemn, this vital question may reach a settlement. Judging from the past, however, we have too often been made to suffer from a surfeit of mono-ideal and sometimes monotonous intellectual pabulum, varied only by occasional changes of place and utensils, from vagina to abdomen and back again, and dished up, I had almost said slaughtered, by the irrepressible advocates of pelvic evisceration. In fact, any unsophisticated outsider might reasonably suppose that the entire body of gynecologists had settled down to the conviction that for cancer of the cervix, be it much or pathologically infinitesimal, nothing short of total ablation of the offending but doomed organ is to be considered.

Indeed, so universal of late years has this short-cut to the solution of difficult and complex problems become that gentlemen of more conservative, sometimes called obsolete, views, have been made to feel that they had no standing in court, and deeming silent discretion the better part of outspoken disapproval, have usually, and perhaps wisely, kept quiet.

In this way those of up-to-date ways and methods, occasionally having novelty, if nothing more, to commend them, in attending society meetings, if the subject for discussion happened to be cancer of the uterus, and being well primed and equipped for a one-sided contest, could always air their opinions and display their uterine trophies unchallenged and unhampered, as in the good old days of wholesale oöphorectomy. So, my friends, in spite of the courteous invitation extended to me to attend this meeting and to participate in the discussion of one of the most important, yet open, questions in the whole range of gynecology, I confess I do so with no little diffidence and reserve if not a feeling akin to obtrusiveness on my part.

Regarding the relative merits of hysterectomy, vaginal or abdominal, and removal of the diseased part by the cautery knife, not loop nor galvanic snare, which I have many years ago discarded as less efficient, and very thorough dry roasting of the remaining cavity, four years ago I made what I fondly hoped at the time might prove to be the final effort to induce members of the American Gynecological Society to give this method of treating operable cases of cancer of the cervix uteri a fair and practical test. On that occasion, however, the remarkably strict application of a rule governing time compelled me to desist at an important point in my remarks. In consequence of this, or perhaps from a lack of interest in the subject, the discussion was less full than I had reason to expect. A committee of three was named, however, to investigate the subject, and to send cases, or invite me to operate, but up to the present time *three patients only* have been referred to me, all in too advanced a stage to warrant even a satisfactory hysterectomy. I offer this statement in order to suggest what I have often been inclined to fear, the probable futility of every effort toward popularizing the galvanocautery.

With regard to the technique of vaginal or abdominal hysterectomy, as so lucidly described by Dr. Kelly, I have nothing to say, nor indeed does it properly belong to the subject of our inquiry to-night, except in so far as certain steps in such operations may influence primary mortality. By far the most vital and far-reaching question, and in fact the only one expressed or implied by the title of the paper, is what is the best treatment for uterine cancer, or, in other words, which of the two methods of operating now under consideration insures to the patient the longest period of exemption from a recurrence of the disease? As to primary danger from hysterectomy, there need be no contention on this point. In the hands of an expert operator, the extirpation of a cancerous uterus, as I have before said, need not be and has not been followed by a ratio of primary disasters sufficient to for a moment cause doubt as to the admission of such a procedure per se to the domain of legitimate surgery. On the contrary, the very large proportion of recoveries should be looked on as one of the many brilliant examples of modern surgery, and of which any reasonable operator ought to feel proud. Were it not, therefore, for the groundless assumption of those who have been persistently trying to minimize the difficulties, as well as the dangers of these operations, by quoting the phenomenal success of a few favored ones only, the question of primary mortality need hardly be considered. So when in 1892 I undertook the analysis of published statistics up to that date, my main object was, if possible, to disentangle and sift from the chaotic mass some grains of truth regarding the period of exemption from recurrence of the disease obtainable through hysterectomy.

Therefore, whether the death-rate due to this operation be 5 or 15 per cent., or, as in cases treated through the agency of the electric cautery, less than 1 per cent., need not trouble us at present, and does not seriously affect the more important questions regarding the degree to which life may be prolonged by either method, and the period of exemption from recurrence, assured or obtainable.

To any one who may undertake to glean facts and truth from the ingeniously and marvellously constructed statistical reports on the results of hysterectomy for uterine cancer, the task will be found to be one of extreme difficulty, and in some instances almost impossible. In some, I regret to say, will be found a strained, yet unsuccessful, effort to divert attention from leading and vital issues to a tabulated but unwarranted summary, while in others the perversion of figures is so manifestly, and it would seem purposely, resorted to to obliterate the tracks of disaster, that it will often be found hard to pursue this line of investigation with any degreee of patience. As neither the occasion nor time will permit me to go into details, for which I would refer to Volume xviii of the "Transactions of the American Gynecological Society," I will merely state as a sample of what may be learned by any one who will take the trouble to interpret reports on recurrences after hysterectomy for cancer up to 1892, and subsequent experience will in no material point justify any modification, the following: In summing up all the facts obtainable regarding the results obtained in 235 cases treated by a number of leading operators in Germany, France and elsewhere, we found but 63, or 27 per cent. of the whole, in which relapses were noted, while nothing whatever is said of the fate of 172, or 73 per cent. of the whole number operated on and tabulated as follows: One had no recurrence for 8 years, 1 none for 7, 1 none for 6, 7 none for 5, 17 none for 4, 15 none for 3, 19 none for 2, 2 none for 1 year. An average exemption from recurrence or death for 63 patients out of 235 was three years and nearly four months.

From reports like this, and it is a fair specimen of what is available, no possible trustworthy data can be gleaned, because if, for example, to each of the 172 patients, or those of whose fate we are told nothing, we allow even one year of life, which would be far in excess of what all records warrant, we have in the aggregate 381 years of exemption for 235 patients, or one year, seven months and thirteen days only for each.

Again, at the International Congress in Berlin, in 1890, Olshausen reported 163 cases of hysterectomy for cancer at the University Womans Klinik, 42 only of whom were living at the end of two years, and of the entire number who escaped death from the operation, namely 155, 19 only were free from recurrence.

Facts like these, and the records of every country with them, may be modified to an inconsiderable extent by the rare and more happy experiences of able and exceptionally fortunate surgeons like the indefatigable author of the paper under consid-

eration, but I contend that they should be well pondered over and not dismissed, as they have been heretofore, with the vain hope that by improved technique and greater familiarity with these operations better results may yet be reached. It should also be remembered that, although a more or less perfect technique must and has lessened primary mortality, it can not likely influence, and has not materially, the great liability to recurrence, due mainly to traumatic infection, against which we can devise no reliable safeguard. To this latter defect and the unavoidable mauling of outlying tissues, often in an early but unrecognizable stage of cell proliferation, and thus more responsive to traumatic irritation, are we to attribute the great and well-known liability to recurrence after hysterectomy. Truly, the most noteworthy fact in the history of this operation is that a very large majority of women suffering from uterine cancer may submit to it yet live for a time at least.

Regarding my own experience in the treatment of cancer of the cervix by the electrocautery, covering a period of thirty years, I have but little to add to what is already of record. During the last ten years, what the advocates of hysterectomy would consider operative cases, i. e., those in which the disease is found to be limited to the cervix proper, the vaginal surroundings intact, and the whole organ fairly movable, have been comparatively few and rare. Consequently, of late years, most of my work in this line has consisted of a free use of the curette, trimming the ragged edges by cautery knife and thoroughly roasting the cavity. In this class of cases, when it is found that the disease has extended beyond the os internum, the sharp or the serrated curette is also freely used, but in exceptional cases only is actual cauterization carried to the fundus proper.

Several patients, at least five, of this advanced and otherwise hopeless class, operated on in this manner from ten to fifteen years ago, are now known and reported by reliable physicians to be perfectly well. Similar results in so-called inoperable cases are by no means rare in my experience, as my hospital colleagues well know. As for cancer of the cervix proper and uncomplicated, my reports and predictions of 1872, 1875, 1889, 1892 and 1894 have been fully confirmed and substantiated. In other words, in cancer of the cervix at an early stage or of circumscribed degree, excision by the cautery knife and deep and thorough dry roasting of the cavity by the dome-shaped electrode, while absolutely free from danger, insures a longer, if not a permanent, respite from recurrence than any other known means. Again, in more advanced cases, deemed at all operable by the most reckless advocates of hysterectomy only, the free use of the curette followed by electrocauterization as I have so often described, advised and resorted to will always be found to be a safe and palliative measure, and will often insure a nonrecurrence of several years.

Without going into details, and as the clinical grounds and basis of these statements, and the results of long and careful observation, I can simply say that in 100 cases of strictly cervical cancer, permitting of supravaginal excision by the cautery knife, and further dry-roasting of the cavity, the great majority will be followed by a permanent cure, while, in less favorable ones, an average longevity and freedom from relapses of from seven to eight years may reasonably be expected. In the more advanced class, always premising that the corpus be not involved, the results, as stated, are strictly in accordance with my experience.

The seemingly paradoxical assertion that the extirpation of the diseased part of a carcinomatous uterus by electrocautery, besides being absolutely free from danger, should also give better results than extirpation of the entire organ has usually been met with the simple *non credo* of those who fail to reflect on the peculiar effects and properties of the agent employed. My explanation of this apparent enigma, supplementary as it is to clinical facts, may be found in the volume of "Transactions of the American Gynecological Society" for 1892, and is as follows:

I am of the opinion that in the parametric tissue of many cancerous uteri, and much beyond what might seem to be the limit of disease, there exist some morbid cell changes due to faulty nutrition, or cancer germs, but, in so undeveloped a state as to be inappreciable even by the aid of the most powerful microscope. Under such circumstances there is surely nothing unreasonable in surmising that cell proliferation, hitherto slow, or almost dormant, would be hastened, and that formative processes, so responsive to any kind of irritation, would be roused into active life through the traumatic stimulus of an operation, and the exposure of more or less raw surfaces. On the other hand, in the progress of an amputation by cautery, and where the heated knife is so long and repeatedly applied —for such operations must be slow—the effects of the heat on outlying structures may be imagined by the shriveled and comparatively small size of what had been, before operation, a voluminous cervix. In no other manner do I think it possible to explain certain phenomena following these operations by galvanocautery, e. g.: 1, absence of fever and almost all pain, pelvic or peritoneal; 2, the almost universal immunity of the scar tissue after cauterization from secondary attack in the event of recurrence of the disease, and 3, in the case of relapse, the long respite obtained from reappearance of the disease in remote parts, even in the more unpromising cases of undoubted circum-uterine infiltration.

Why, it may be asked, have phenomenally successful results obtained through the agency of the electrocautery failed thus far to convince theoretic skeptics wedded to the glamor of more sanguinary methods? Why will gentlemen still declare there is but one remedy for cancer of the cervix uteri? Why will they persistently declare that there is positively no place for any treatment other than hysterectomy? And why will editors of journals published in the interest of gynecologic progress, in reviewing the treatment of uterine cancer, and supposed to be *au fait* in leading questions touching the subject, continue to insult our intelligence by stating in an *ex cathedra* fashion, that though the treatment of uterine cancer by hysterectomy "is eminently unsatisfactory," yet that "it is the best procedure now at our disposal?" Why will gentlemen still persist in palming off the base coin of obsolete methods as mine, and talk of removing a cervix by the galvanic snare, an instrument which I have not employed ten times in twenty years? Finally, where, I would ask, can we find, throughout the pages of gynecologic literature, a shadow of warrant for the dictum that hysterectomy, with its ghastly and life-curtailing record, is the only surgical procedure admissible in cancer of the uterus? These and many similar questions I shall not waste your time in discussing, but merely submit them for your own consideration and possible solution.

In the light of startling facts like those I have barely touched on, is it not marvelous to think that at this late day so few, if indeed any, of our numerous and otherwise progressive gynecologists should have accorded to the electrocautery a reasonably fair and practical trial? Those who have reluctantly admitted its claims to serious consideration have, for the most part, done so through the representations of others rather than from an adequate practical knowledge of its worth or possibilities. Hence it is not surprising that in nearly all past discussions on the treatment of uterine cancer by the galvanocautery, the most outspoken doubters and the most zealous advocates of any or every other method of operating have usually been those least qualified to judge. Whether the essential attribute of an umpire, i. e., the power or skill to compare or contrast, is wanting, opinions regarding the relative merits of any two or more methods of operating for uterine cancer, for example, as between the galvanocautery and hysterectomy, must necessarily be worthless, and should have no legitimate claim to consideration.

Within the last few years, however, owing to the substitution of the dynamic for the chemical current, the less frequent use of the troublesome and fitful battery, and the comparative facility with which the most delicate, as well as the most extensive, operations may now be conducted, by hospital surgeons especially, there is no longer any valid excuse for culpable apathy or indifference.

There is every reason to hope, therefore, that intelligent, unbiased and honest investigation, so long desired, may yet unfold the whole truth, and thus remove every doubt as to the rare exceptional and special efficacy of the electrocautery and the gradual abandonment of hysterectomy in the treatment of cancer of the cervix uteri.

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ETIOLOGY, PATHOLOGY AND SURGICAL TREATMENT OF TUBERCULOSIS OF THE KIDNEY.

In the absence of a specific remedy for the treatment of tuberculosis, the clinician must avail himself of all those measures that have proved in any way helpful. While it is universally admitted that the tubercle bacillus is the exciting cause of the disease, it is recognized that the conditions, as yet undefinable, that render possible the manifestation of its activity, are scarcely less important. The mere presence of the bacillus does not constitute tuberculosis, but this consists rather in the reaction that takes place between the invading micro-organism and the attacked tissues. The disease is to be averted by preventing dissemination of tubercle bacilli, and by rendering the tissues resistant to their invasion; and the indications for treatment are the extrusion, destruction, encapsulation of the bacteria, or otherwise rendering them innocuous, the neutralization of their effects, and the repair of lesions. The tubercle is a local formation, and its removal would constitute the most certain means of cure. Unfortunately, however, the lesion is not single, nor always circumscribed, while often it is situated in an inaccessible organ, or is otherwise not susceptible of excision. Of the several situations in which such intervention is feasible and sometimes promising, the kidney is one; and the results thus far attained in this connection are most encouraging. An important requisite for successful treatment is, here as elsewhere, early diagnosis.

A most interesting discussion of the subject of tuberculosis of the kidneys, with especial reference to etiology, pathology and surgical treatment, has been entered into by Newman[1]. It is pointed out that renal tuberculosis may occur as acute miliary, as localized, or as chronic tuberculosis or caseous nephritis. Healthy kidney-tissue is thought, by reason of its abundant blood-supply, although it is more vulnerable than other portions of the urinary tract, to possess a remarkable power of destroying organisms introduced into its substance or of eliminating them from the system. Tubercle bacilli may, thus, be found in the urine of persons suffering from tuberculous disease of bone, the lungs, or other organs, in the absence of morbid structural change in the kidneys.

The natural power of the kidneys to destroy or eliminate micro-organisms may be impaired as a result of local disease or hemorrhage or traumatism. The kidneys may become invaded by tubercle bacilli through the blood-stream, the tuberculous particles being so small as to be stopped only in the ultimate capillaries, where they give rise to numerous miliary deposits; or through infective emboli entering a branch of the renal artery, and the tuberculous virus becoming disseminated throughout the area of its distribution. Invasion may take place also along the lymphatics of the kidney from foci in the lower urinary tract; by contagion along the lumina of the excretory ducts; by contiguity from adjacent diseases.

Infection by way of the blood-stream may result in obstruction of the capillaries or in tuberculous emboli of the arteries. In cases of acute miliary tuberculosis of the kidney, the bacilli are conveyed by the blood-vessels and are widely distributed. The disease is always associated with tuberculosis of other parts, and attacks children more commonly than adults. The condition usually escapes recognition during life, as it does not give rise to distinctive symptoms. A tuberculous embolus in the kidney may undergo caseation or become encysted. The disease is generally unilateral, and involves only a portion of the kidney-substance, although there may be more than a single focus. At first, the lesion is limited to the substance of the kidney, but in the further progress of the case, the tuberculous process is carried forward through other channels, unless a conservative inflammatory action closes the lymphatics and prevents extension. If the caseous material breaks down, rapid destruction of the organ may result.

Tuberculous pyonephritis may arise in several ways. Thus, the primary focus may be in the kidney-substance itself. If the ureter becomes blocked by tuberculous thickening of its walls, by impaction of masses of debris, by cicatricial stenosis, or by twisting, pyonephrosis will be likely to result. Primary tuberculosis of the pelvis of the kidney is less common than secondary infection. With tuberculosis of the kidneys there are usually associated inflammatory changes in the mucous membrane of the pelvis, the ureter and the bladder.

Tuberculous infection of the kidneys by way of the lymphatics, from foci in the lower urinary tract, is not uncommon. Such ascending renal tuberculosis is characterized by early obstruction to the escape of urine from the pelvis, with symptoms and signs indicative of hydronephrosis or pyonephrosis. Extension by contagion along the lumina of the ducts occurs in cases with ascending tuberculous lesions. Infection by extension of disease from adjacent organs is uncommon.

Statistics show that tuberculosis, both primary and secondary, occurs in the kidneys in about 5.6 per cent. of all cases of tuberculosis. The renal localization seems to be more common in children, in the proportion of nearly three to one. The presence of pyuria, together with renal symptoms in men, should always suggest examination of the genital organs and the prostate for tuberculosis, and association with rapid emaciation, anemia, elevation of evening temperature, and rapidly

[1] The Lancet, February 24, March 3 and 10.

progressive marasmus should arouse suspicion of tuberculosis. The presence of pain depends on whether the pelvis and the ureters are involved or not. Vesical irritability, as manifested by incessant and painful micturition, is a frequent, and almost characteristic, symptom. Strangury also is often present. A swelling may be appreciable in the loin if the kidney is enlarged. Careful analysis and microscopic examination of the urine are necessary for early diagnosis. Polyuria is often one of the first indications of a tuberculous lesion in the kidney. Hematuria may occur long before, as well as after, the development of a gross renal lesion. It is rarely profuse. The urine contains albumin, but no tube-casts. The detection of the tubercle bacillus is extremely important. Ureteral catheterization may be necessary to determine whether the disease is situated on one or both sides.

Tuberculosis of the kidney must be differentiated especially from renal tumors, septic pyelitis and pyonephrosis, and renal calculi. The prognosis is most unfavorable, the more so if the disease is not limited to one kidney, but extends to the ureter, the bladder or the other kidney. When the disease is localized in one kidney, or in only a part of the kidney, the tuberculous material may be discharged or may dry up into a firm caseous mass, while the other kidney undergoes compensatory hypertrophy.

It must be admitted that spontaneous recovery may take place, or the progress of the disease may be checked. Some time elapses between the onset of primary tuberculosis of one kidney and the invasion of other parts, and it is in this interval that the surgeon can intervene with advantage. A number of cases are on record in which life has been prolonged for a considerable time by surgical treatment, or good health has been conferred for a number of years. Nephrotomy may be practiced if the disease is limited to a small area, or has formed a single cavity that can be drained. Should recovery not ensue, we can then resort to nephrectomy. This should be undertaken as a primary operation when the disease is extensive and little can be hoped for from incision and drainage. When operative intervention is deemed advisable, symptomatic treatment should be employed. The internal administration of boric acid, salol, ammonium benzoate, and also of antipyrin and extract of hyoscyamus, frequently affords relief from vesical irritability. Strangury may be alleviated by the employment of preparations of opium by the rectum, or of warm sitz-baths; and when the urine has become alkaline, calomel given by the mouth exerts a beneficial effect.

THE DEVELOPMENTAL CYCLES OF THE ORGANISM OF MALARIA.

In order to understand the peculiar and complicated developmental cycles of the malarial parasites, it is necessary to consider the organisms most closely related to them, namely the coccidia, because the details concerning these are much better known. As there is no change of host in the case of the coccidia, the process is not so complicated as in the malarial parasites. Shorn of a wealth of detail, the developmental cycle of the coccidia runs somewhat as follows, according to the recent review, by Lühe,[1] of the investigations of sporozoa, with especial reference to the malaria parasites and related organisms. As is well known, coccidia are found rather frequently in the intestinal tract and the liver of vertebrate and other animals. Examining the feces of an infected rabbit, for instance, there are found encysted parasites of varying size, which Schaudinn and other prominent investigators in this line call "oocysts;" they have a double contoured membrane and a unicellular content, called "sporont." The further changes are readily followed in the moist chamber. The unicellular contents divide into a certain number, commonly four, or "sporoblasts," which in turn become "sporocysts" by the appearance of a protected membrane around each spore. Each sporocyst forms two nucleated sickle-shaped bodies, the so-called "sporozoites." And now the sporocyst may remain latent for several months without losing the power to develop further, hence it has also been called lasting spore. Further development takes place only when it is taken into the digestive tract of a suitable animal; then the membrane is dissolved and the sporozoites penetrate into epithelial cells. The form of multiplication just described is termed "sporogony."

In the host, however, multiplication does not take place according to this type. After much controversy the zoologists practically agree that in the host multiplication takes place by fission. The sporozoites may develop and subdivide into numerous sickle-shaped organisms, called "merozoites." As the mother organism of the sporocyst is called "sporont" so the mother organism of the merozoites is called "schizont." This mode of reproduction is termed "schizogony," and it alone can explain the massive infections sometimes observed in animals and which consequently are the result of a sort of auto-infection. Schaudinn has shown that the schizonts rapidly form merozoites, and that multiplication in this manner at first goes on at a great rate. Later, when the host has become weakened and the conditions of the nourishment of the numerous parasites unfavorable, then another mode of reproduction is resorted to, and the sexual coccidia appear. Some of the merozoites grow to form larger, female cells, the macrogametes, and others form the so-called microgametocytes, the nucleus of which rapidly subdivides into a number of nuclei that become surrounded with a small amount of protoplasm and leave the mother cell as spermatozoa—microgametes. The copulation between the macrogamete and microgamete occurs according to the same principles as in the impregnation of the eggs of metazoa. The result of the copulation is the oocyst, the starting-point of sporogony.

Sporogony secures the preservation of the species and

[1] Cbl. f. Bakt., Abth. i, 1900, xxvii, 367.

the spread of the infection, while schizogony increases the infection of the host. Coccidia consequently present alternating, sexual and non-sexual generations.

Lühe then recounts step by step the development of our present knowledge of the mode of infection of human malaria and the rôle played by certain mosquitoes, especially Anopheles claviger, as one of the hosts necessary for the development of the malarial organism. These things have been described from time to time in these columns. The reproductive method first understood of the malarial organisms corresponds to the schizogony of the coccidia. The sexual processes that lead to multiplication by sporogony were first recognized by McCallum, who demonstrated the copulation of the male and female elements. Reproduction by schizogony takes place in the blood of the warm-blooded host—man. Sporozoites pass into the red corpuscles, develop into schizonts, which divide into merozoites. The merozoites may and ordinarily do repeat this process. After a time, however, they form sexual individuals and in pernicious human malaria these assume the crescent and oval forms characteristic of this affection.

The maturation of the sexual forms ordinarily takes place in the stomach of the blood-sucking mosquitoes. Here copulation takes place, and the resulting body—called "ookinete"—passes into the intestinal wall of the mosquito, where it forms innumerable sporozoites which ultimately collect in the salivary glands of the insect where inoculation of the warm-blooded host results during the act of stinging. And now multiplication by schizogony again begins. It will be seen that, stated in this simple manner, the developmental cycles of the malarial organisms correspond accurately to those of coccidia, the essential difference being that in the case of the malarial organism the sexual cycle is connected with the change of host and runs its course in the mosquito.

The intracorpuscular parasite seen in the blood of quartan malaria, for instance, is a sporozoite; as it grows it becomes a schizont—sporulating body—and the "spores" formed as it breaks up are the merozoites of the zoologic nomenclature.

It would be of lasting service to all present and future students of malaria and malarial parasites if the writers on subjects connected with reproduction of the organisms would agree as far as possible to the use of the same nomenclature. In a matter as complicated as this with phases subject to different interpretations, entire unanimity in nomenclature is not to be expected, however. The mere mention of the group of malarial organisms suggests a large list of synonyms. Lühe points out that according to the law of priority, which is the only one applicable in cases of this sort, the correct name is plasmodium malariæ. This name ought therefore to be used in the interests of uniformity and simplicity.

DRUGGISTS of Vienna have agreed to charge a special rate for putting up prescriptions marked *pro paupere*, by the physician.

ETIOLOGY OF ACUTE ARTICULAR RHEUMATISM.

In a recent review of the infectious diseases, Packard[1] considers the various theories in regard to the etiology of acute articular rheumatism. There is little or no foundation for the humoral and the nervous theories. The principal support of the humoral theory was the similarity between articular rheumatism and gout, the joints being affected in both. The lactic-acid theory grew out of this apparent relationship. But the fact that lactic acid may cause articular pain and swelling does not prove that it is the cause of acute rheumatism, because there is more to rheumatism than articular inflammation. How should the excessive production of lactic acid be explained? The nervous theory was the outgrowth of the similarity between the joint affections of acute rheumatism and of certain nervous diseases. There is no good reason to be advanced in favor of nervous joint centers. There is no real evidence of any relationship between rheumatoid arthritis and acute articular rheumatism, hence no support of the nervous theory is to be derived from comparing these two diseases with each other. Packard points out the confusion in nomenclature that has come from calling the secondary arthritis of such diseases as gonorrhea, scarlet fever, and pyemia rheumatism; at the same time such names as gonorrheal rheumatism, etc., give a suggestion as to the probable nature of acute articular rheumatism. There are a number of affections, such as lumbago, certain forms of wry-neck, etc., that are called "rheumatic" largely because they are painful, but there is not the slightest connection between acute articular rheumatism and these troubles. Either the term "rheumatism" should be restricted to these disorders, or else they should be designated by more appropriate terms.

Acute articular rheumatism is a distinct clinical entity. There is considerable resemblance between the general manifestations of acute articular rheumatism and pyemia, only that in pyemia there is no difficulty in studying the organism at work.

The efforts to discover the cause of acute articular rheumatism have thrown much light on arthritis of various kinds. It need not be stated that the infectious arthritis of pneumonia, of gonorrhea, and of a number of well-recognized infections, is not acute articular rheumatism.

Packard then reviews the principal reports of bacteriologic work in acute articular rheumatism. Without going into details suffice it to say that the results reported by the various investigators are so contradictory that no definite conclusions can be drawn. The organisms that have most claim for consideration are the bacillus of Achalme and the diplococcus of Triboulet. The diversity of the bacteriologic findings has led to the suggestion that acute rheumatism is not an etiologic entity, but that it may be produced by a number of different organisms. Packard finds the view advanced by Singer

[1] Progressive Medicine. March, 1900.

to be attractive, namely, that our disease is a modified pyemia, the difference between the two being one of degree rather than of kind. It has been pointed out that attenuated organisms have a certain affinity for joints. Packard also dwells on the relation of angina to rheumatism, the angina being regarded as an evidence of the entrance of the morbific agent into the body at the tonsils; further that the lymphadenoid tissue of the faucial mucous membrane may lessen the virulence of the organisms before they reach the internal organs. This theory is strengthened by Manfredi's experiments on the influence of lymphadenoid tissue on bacteria. Manfredi and his pupils[2] show that lymph glands may retain microbes for a long time, the virulence being more or less reduced. This theory is an interesting one, and it is strengthened in a measure by the fact that pyogenic cocci are reported present rather frequently, relatively speaking, in the joint and other lesions of rheumatism, but if the disease is a mild form of pyemia we would have a right to expect that pyogenic cocci would be found in the lesions far more constantly than has been the case up to this time.

There are many features of rheumatism that speak in favor of the phenomena being produced by a toxin or toxins: the frequent, in fact, common, absence of bacteria from the articular exudate, the evanescent character of the joint symptoms, the completeness of recovery of the affected articulations. Packard sums up the evidence somewhat as follows: Rheumatism is an exogenous disease; the part played by cold and wet in its production must be regarded as productive of a general lowering of vitality, permitting infection of some kind, whether specific or produced by various organisms can not now be settled. There is much to favor the view that pyogenic cocci of reduced virulence are frequently the cause of the disease. And it is also possible that bacterial toxins absorbed from some hidden bacterial focus produce the articular and some of the other phenomena of the disease.

On the whole it seems that this undesirable uncertainty and vagueness of our knowledge concerning the etiology of acute articular rheumatism may give way to clearer notions only through patient, thorough, clinical and bacteriologic study of larger series of cases. There is excellent room here for investigations of high practical and scientific value.

[2] Virchow's Arch., 1899, 155, 335; Ztft. f. Hyg. u. Infektionskr., 1899, xxx, 64.

OPERATIVE RELIEF OF SUPPRESSION OF URINE OF LONG STANDING.

Interference with the discharge of urine may result from mechanical or functional causes. Obstruction of the urinary passages at any point—by a calculus, a stricture, a neoplasm, a twist or a kink, or by pressure from without—will have this effect; as may also disease of the kidneys, by preventing the secretion of urine. Suppression of urine at times results from reflex influences. Deficient elimination of urine, from whatever cause, will be followed by the development of uremia, although the skin, the bowels and the lungs may for a time vicariously assume the functions of the kidneys. This period is usually not a long one, and generally rather short, but an interesting case in which it extended over sixty hours, and relief was afforded by operative intervention, is reported by Jaffrey.[1]

The patient was a man, 53 years old, who had felt ill for several weeks and for a short time had complained of pain in the left loin and a dragging sensation in the region of the left kidney. Micturition was frequent and the urine had appeared normal. Anuria, however, set in, with acute tearing pain in the left groin and lumbar region, together with frequent vomiting. Applications of hot fomentations to the loin and the administration of diuretics internally failed to afford relief. On introduction of a catheter into the bladder after suppression had been present for two days, only a little blood-stained mucus was obtained. No definite tumor could be developed on palpation at first, owing partly to thickening of the abdominal walls and their rigidity, but on the third day, a well-defined tumor could be felt and was thought to be the distended kidney, probably hydronephrotic. The catheter again failing to afford relief, the kidney was exposed through an opening in the loin and found to contain not urine, but rather more than a pint of blood-clot and serum between the perinephric fat and the kidney itself. Blood was present also between the capsule of the kidney and the cortex. The kidney was larger than normal, much congested and when incised it bled freely. The pelvis of the kidney was filled with blood-clot. No calculus and no other possible cause of obstruction could be detected. Irrigation was practiced, a drainage-tube introduced and the wound sutured and dressed with cyanid gauze. Urine was discharged through the tube, which slipped out of place, and was not restored, and in thirty-six hours practically all of the urine was being passed by the natural channels. The patient was out of bed on the sixteenth day and left the hospital three weeks after entrance, quite well. The nature of the influences responsible for the suppression of urine in this case is not clear, although it is suggested that it may have been due to a small calculus or to kinking or to compression of the ureter by the blood surrounding the kidney or finally to congestion of the kidneys.

[1] The Lancet, March 3, p. 612.

ATTEMPTED CONTROL OF SECTION ON MATERIA MEDICA.

The action taken by THE JOURNAL in regard to the proprietary and secret nostrums is having the effect of arousing to action those interested in these products. They are actively at work with the object of getting control of the Section on Materia Medica, Pharmacy and Therapeutics of the AMERICAN MEDICAL ASSOCIATION next month, and to accomplish this they are sending circular letters broadcast. Those addressed are editors of certain medical journals whose support comes

only from their advertising pages, drug journals, and physicians whose influence they are hoping to get. Well-known secret nostrum houses of St. Louis and New York are especially energetic, and spare neither postage stamps nor even telegraph tolls. Many of the letters have been forwarded to THE JOURNAL by those who received them, although it has not been favored with any sent direct by the gentlemen managing the enterprise. When THE JOURNAL took up the fight against secret nostrums, it expected opposition and is not surprised at the first skirmish of the battle. But we can assure the gentlemen that they need not be in the least afraid that the "German chemical houses" will get control of the Section, any more than will the secret-nostrum houses. It will be controlled in the future, as in the past, by physicians of standing in the profession.

DOES NOT TAKE A JOKE.

An English medical statistician, in reporting on the mortality of his district, for 1899, took the occasion to suggest that the predominance of male births was influenced by the patriotic enthusiasm aroused by the present war. This was apparently offered as a facetious comment and it was accepted as such by the council receiving the report. Our British contemporary[1] that gives us the item does not appear to take it kindly as such. It not only ironically congratulates the council on its sense of humor, but gravely proceeds to remark that the figures are too small to afford any sound conclusions, and that a still greater fallacy is involved since it is impossible to suppose that maternal patriotic zeal could have affected the sex of unborn children in the last two or three months of pregnancy. Hence it says: "absurdities of this kind will do nothing to advance the position of the medical officer of health as an instructor of the community." The humor of the suggestion appears to have been comparatively innocent; at the worst it is only a matter of taste, but the serious consideration it has received has a still funnier side.

EPILEPSY, RICKETS, AND THE LYMPHATIC CONSTITUTION.

The association of idiopathic epilepsy—*grand mal*—with the lymphatic constitution—persistence of thymus gland, hyperplasia of lymph nodes, and of spleen—has been emphasized of late by Ohlmacher. The association of lymphatism and of idiopathic *grand mal* has been so strikingly frequent in the autopsies in Ohlmacher's laboratory at Gallipolis, Ohio, that a thorough study of the literature bearing on persistent thymus and on the lymphatic state became necessary. The clinical condition of thymic asthma, or laryngismus stridulus, of infancy is connected on the one hand with the lymphatic constitution, of which enlarged thymus is often but a part, and on the other hand clinicians are wont to associate it with rickets. Tetany and infantile convulsions are also referred to "the rickety diathesis." With these considerations in view, and guided also by gross pathologic evidences of rickets in some of the epileptics, Ohlmacher was led to think more and more of the relation of idiopathic *grand mal* and rickets; and, all things considered, he became convinced that rickets plays an important rôle in the development of epilepsy.[1] Ohlmacher[2] refers, with a certain sense of satisfaction, to the fact that Gowers in 1885 had reached the same conclusions from purely clinical data obtained from a careful study of the infantile period of ninety-eight cases of epilepsy. Gowers was so strongly impressed with the apparent influence of rickets on the development of epilepsy that he was led to suggest that a considerable proportion of cases of epilepsy are really within the range of preventable diseases. There is reason, then, for continued effort toward clearing up the relationship of rickets, epilepsy, and the lymphatic constitution. We are as yet in the dark as regards the essential nature of rickets, and the lymphatic state. But at all events, infant hygiene and feeding should be brought up to the highest standard so as to do what can be done, in the light of our present knowledge, to prevent epilepsy and other neuroses that seem to have some connection with such diseases of infancy as rickets.

THE PLAGUE AND COMMERCIAL INTERESTS.

The San Francisco Board of Health started out right when the bubonic plague first developed in that city, and courageously did its duty in spite of bitter opposition. But in the more recent developments it has certainly laid itself open to censure. Two weeks ago[3] we noticed the discovery of another case of the plague in San Francisco's Chinese quarter, the account being sent to us by telegraph by our regular correspondent. Shortly after his telegram was received, another came in which we were requested not to publish the matter, as the merchants' association there desired it kept out of the papers. Developments show that the merchants succeeded and that while they kept a knowledge of the conditions out of the general newspapers—a report of the case appearing exclusively in THE JOURNAL—the disease spread. Secrecy in this instance meant half measures in fighting the disease, whereas the most energetic steps, those which could only be carried out openly, were demanded. The penny-wise policy has proved to be a pound-foolish one for the business men of San Francisco. We have frequently asserted that there is no danger of the plague spreading in this country, even though it came to our shores, but if secret half-hearted measures are to be adopted in deference to commercial interests, then a different story may have to be told. The San Francisco Board of Health has been abused by the newspapers and will be in the future, probably, but none the less its duty is to protect the people against the spread of the disease, even if commerce should temporarily suffer by the publication of the actual conditions.

MEDICAL SOCIETIES.

A British contemporary,[4] remarking on the fact that some 700 medical societies are entitled to representation at the AMERICAN MEDICAL ASSOCIATION, says that the United States must be the "happy hunting-ground" of medical organizations. It further states the fact that

[1] Med. Press and Cir., May 2.

[1] Bulletin of Ohio Hospital for Epileptics, Vol. i, Nos. 2 and 3, 1898.
[2] Am. Jour. of Insanity, April, 1900.
[3] THE JOURNAL, May 5, p. 1141.
[4] Medical Press and Cir., May 2.

the figures given do not represent the total, and mildly deprecates the mighty burden of literature that must be thrown upon the profession if all the societies regularly publish proceedings. The local American medical society is an institution that is not fully understood by outsiders, but it is nevertheless a very important and valuable reality. Were its possibilities fully developed, and had every one of the thousands of counties an organization, the numbers would still more astound our contemporary. There would be, however, less danger of wasted or buried wisdom than it seems to think; such societies are or should be local stimulants of scientific medical work, but not necessarily publishing bodies. That society proceedings do sometimes bury valuable papers, so far as the general knowledge of their contents is concerned, may still be occasionally true, but it is certainly less so now than at any former time. The greater evil, if it is an evil, at the present is the over and over republication of the same articles. In any case the danger from multiplication of local centers of scientific medical progress and thought is not in this or any other respect as yet a serious one, although the same can not be said of the district, tristate and seminational bodies.

THE PLAGUE.

The newspaper reports of new cases of plague in San Francisco are not surprising; in fact they are no more than was anticipated. Any of our Pacific ports in direct communication with the Orient and with a specially segregated Mongolian quarter are liable to the same possibilities, and inland cities with similar elements in their population are also not free from danger. The influx of Japanese was never greater than at the present time, and it may be that in this is our greatest danger. Plague is now, however, a pandemic; it has reappeared in Egypt, it exists in South Africa, South America, Australia, China, Japan, Russia, and Persia as well as in India, where it has extended itself, being malignant in the eastern portion of that country, in Calcutta as well as in Bombay. It is therefore a universal danger and one that should receive the attention of sanitarians everywhere, as, with the greatly expanded modern methods of communication, no city with extensive commercial relations can be considered altogether safe. There is one cheerful side to the picture, however, and that is that modern methods of sanitation are a far better protection than those in vogue in the past and that thus far the plague has gained no lasting foothold in any European city. Better modern civilized habits of life have also apparently robbed the disease of many of its terrors, for our race at least. In Hongkong, where it was long epidemic and where the mortality was about the highest known, it was treated by the European community almost as a negligible quantity and its ravages were almost, if not quite, exclusively among the native population. We now know many things in regard to the disease that we did not know before, and while there is not the familiarity that breeds contempt, it may rationally relieve us of much of the senseless fear of this disease that has prevailed in the past. The possibilities of preventive inoculations are also to be considered when calculating the dangers, and we can safely say that if health authorities do their duty the recurrence of anything like the Middle Age epidemics is a very remote probability in any country inhabited by civilized whites. What the plague can do in a country like India at the present time is an object-lesson of the need of due precautions and healthy living on our part. It may be we will find it a necessity to do more than we have done in the past to prevent an undue influx of unassimilable Orientals, with their habits and diseases, over our boundaries.

ANTIVIVISECTIONISTS AND THE "BRITISH MEDICAL JOURNAL."

A peculiar libel suit against the *British Medical Journal* has just been decided in London, in favor of the defendant. One Adams, the editor of an antivivisection publication, discovered a "mare's nest" in a government report, and thought he could make a point against experimenters in that they had, as he supposed, obtained authorization for experiments on animals without anesthetics, but had employed them. He wrote to the Home Secretary in regard to the matter, and received a specific reply that he was mistaken as to facts. Not satisfied with this he sent an insulting circular letter to the gentlemen mentioned in the report, and a number of others, inferentially charging them with bad faith or incompetence in obtaining certificates authorizing experiments without anesthesia and afterward using it, and saying that he should accept their silence as assenting to the accuracy of his inferences. This communication, of which it was said by the trial judge in his summing up that "a more impertinent letter was never written by one man to another," was sent out to over seventy gentlemen, forty-one of whom had no connection whatever with the experiments referred to. A copy or copies of it naturally came to the hands of the editor of the *British Medical Journal* who, in what appears to us to be exceedingly temperate comments, mentioned the writer as an "irresponsible editor," which was the basis of the libel suit just concluded. The evidence showed that the reports and letters were easily understood by any one who wanted to understand them, and that there was no reason for the inferences drawn except the desire to find fault. There are several strange features in this case: one, that this editor who, as the evidence shows, was by no means careful as to imputations about others, should have felt himself libelled by the extremely temperate criticism of the *British Medical Journal*. As the judge remarked, the difficulty in dealing with the case was because the defendant was not the plaintiff, and the whole proceeding is perhaps an illustration of the general state of mind of these especially self-righteous zoophiles. Another feature illustrating this and their methods is the fact that, failing a charge of cruelty, he made one of bad faith, fraud, or ignorance because giving pain was avoided. This antivivisectionist was certainly hard to please. It is not always fair to judge a class by one of its representatives, but this is only an extreme case, if it is that, of the usual methods of the antivivisectionists. There is a general family likeness in them all; they are

all too ready to distort facts, and employ the *suggestio falsi* on the very slightest basis of inference. The petty malignancy shown in the course followed by the plaintiff in this suit is still another evidence of what numerous other facts have illustrated in the past, that excessive zoophily exists often in inverse ratio to philanthropy.

Medical News.

PROGRESS OF THE PLAGUE.—At a meeting of the San Francisco Board of Health and the attorneys of the Chinese Six Companies, May 22, a letter was drawn up for posting in Chinatown to the effect that the Board will not force the Chinese to submit to inoculation and that only those volunteering will receive the prophylactic injection. A house-to-house canvass of Chinatown will be made, to discover, if possible, any hidden cases of the disease, and to thoroughly cleanse the disease-breeding spots. As noted in our editorial columns this week, the Board has endeavored to keep the actual conditions from the public, but on the 21st it admitted, in a circular to the other state boards, that there had been nine deaths from bubonic plague, all Chinese found dead in Chinatown. No further cases are known, but every precaution to prevent the recurrence of the disease is being taken. Rio Janeiro, Brazil, is also a suspected plague center, several cases of the disease being officially reported, and eleven suspicious ones on the 22d. The plague has also appeared in a Persian village near Bagdad, and in Persian Kurdistan, where there have been 122 deaths. The sanitary council has met in extra session at Constantinople to consider these facts, and the Bassorah authorities have been ordered to draw a sanitary cordon around Suleimanie. Cases of plague have also been reported on vessels arriving at Barcelona from Manila, at Assyr, Rangoon and Mattrah in Oman. The *St. Petersburg Med. Woch.* states that advices from Tokio, Japan, announce that Kitasato has discovered a second plague bacillus. The existence of a second casual agent explains the conflicting results with Yersin serum, and Kitasato hopes to be able to produce a new plague serum which will be effective in the cases in which the Yersin serum fails.

PENNSYLVANIA.

Philadelphia.

AUTHORITIES of St. Timothy's Hospital have appointed Drs. William C. Todd and James Libard visiting physicians.

HEIRS OF the late Percival Roberts have donated $50,000 for an addition to the St. Timothy's Hospital as a memorial to him.

THE ANNUAL commencement exercises of the Jefferson Medical College were held May 15. Over 100 candidates received their diplomas. The degrees were conferred by Hon. William Potter, and the presidential address was made by Dr. James D. Moffat, president of Washington and Jefferson College.

THE PHILADELPHIA alumni of the Medico-Chirurgical College held their annual exercises May 18, in the clinical amphitheater of the hospital. The principal address was delivered by Adj.-Gen. Thomas J. Stewart. A banquet followed, at which the principal speakers were: Thomas J. Stewart, Dr. Henry Fisher, and Dr. Frank Haehnlin.

THE NUMBER of deaths in this city during the past week was 535, an increase of 41 over the previous week, and an increase of 152 over the corresponding period of last year. The principal causes of death were: apoplexy, 22; nephritis, 33; pneumonia, 75; measles, 22.

THE BOARD of Trustees of the Philadelphia Polyclinic have recently appointed Dr. James Thorington as professor of diseases of the eye. This is a new chair in that department.

DR. J. M. DA COSTA has been chosen orator for the annual commencement exercises at Yale Medical College. His subject will be "Questions of To-day in Medicine."

MR. W. B. SAUNDERS announces that he has associated with him in business Mr. F. S. Hopkins and Mr. F. F. Legner. The former has been manager, heretofore, of the subscription, and the latter of the publication, department. The firm will be known as W. B. Saunders & Co.

ON THE AFTERNOON of May 14, a fire broke out in a building adjoining the Germantown Hospital and for a time threatened that institution. The loss was about $1000.

COLLEGE SUED BY STUDENT.

A student in one of the medical colleges recently entered suit against that institution for $2500 damages for refusal of the defendant to allow the plaintiff to take the final examinations. The student claimed that he entered this college in 1896, but was subsequently compelled to finish his course at another institution. The college maintained that he was in arrears for his tuition and had failed in certain requisite studies. The jury, after being out all night, failed to agree and was discharged.

NEW YORK.

New York City.

AT THE New York Polyclinic, Drs. Francis J. Quinlan and R. C. Myles have been elected professors of laryngology and rhinology.

MILK BOOTHS.

The board of estimate and apportionment has appropriated $4000 for the construction of two ornamental booths, one for Central and the other for Tompkins Park. They are to be used for dispensing the sterilized milk and infant food supplied by Nathan Straus, and are to cost $1400 each. By the end of this month Mr. Straus proposes to have fifteen milk booths in operation in this city. These are to be provided with proper facilities for cooling and preserving the milk.

CLOSING OF TRINITY HOSPITAL.

For the first time in the twenty-seven years of its existence, Trinity Hospital has been closed, and it will not reopen until October 15, as it is necessary to make extensive alterations in the building. The fact that in the fall it is to be placed in charge of trained nurses has probably given rise to the rumor that this step was taken as a convenient way of retiring the Angelican Sisters of St. Mary, who have been in charge all these years.

THE BICYCLE AND CONSUMPTION.

The long-distance cycle riding of William R. Brown is of a different kind from that to which the public has been treated in the past, for a decidedly novel feature has been introduced —a long-distance bicycle ride with the object of demonstrating its value as a consumption cure. This man has pluckily pedalled away in the face of all sorts of difficulties and discouragements, and in a ride of nearly 148 hours has covered 1400 miles through mud and rain. He was off his wheel only thirty-seven hours altogether, and his total sleep amounted to 11½ hours. On the completion of his fourteenth century, several physicians examined him. They not only found him to be in fit form to continue his ride, but he had only lost 3½ pounds from the commencement of the ride. The respirations were 22, the pulse 60, firm and regular, and the temperature normal. He seemed no more exhausted than most persons at the completion of a single century. The remarkable thing about his weight was its increase, he having gained 3½ pounds in the last two days.

BURNED WITH CAUSTIC POTASH.

A dastardly assault was recently made on the wife of Dr. John J. Cronin. As she opened the door of their residence, in answer to a ring, a slender woman, dressed in black, and closely veiled, asked in a lisping voice if Dr. Cronin was in. On being told that he was not, she hesitated a moment, and then pulling out a small bottle from the folds of her dress, said, "I called to give him this," and pulled out the stopper and dashed the contents, a solution of caustic potash, in Mrs.

Cronin's face. The police were at once notified, and detectives put on the case. They found that less than an hour before the assault the woman in black had called on Mrs. Cronin's mother and had asked where the Doctor lived. From what the mysterious woman said it was evident she was well acquainted with the family. Mrs. Cronin was removed the next day to the Manhattan Eye and Ear Hospital but it is thought probable that she will lose the sight of one eye.

DAMAGES AWARDED A PATIENT.

A case of much medicolegal interest, and one that has been in the courts for five years, has just been decided. It is the suit of Miss Helen D. Ward, to recover $30,000 damages from St. Vincent's Hospital for injuries resulting from the carelessness of a nurse in burning Miss Ward while the latter was still under the influence of ether after an operation. She entered the hospital in February, 1894, and paid $25 a week for board and $3 a day for the services of a special nurse. The operation was performed by her own physician and was entirely successful, but the burn on her leg, it was alleged, eventually compelled Miss Ward to undergo an operation to save her leg from amputation. The suit was first brought in March, 1895, and came to trial three years later. The judge directed a verdict for the defendant, on the ground that the hospital was a charitable institution and, therefore, not liable for the negligence of employees. The case was appealed, and in April, 1899, the judges of the appellate division unanimously ordered a new trial, holding that Miss Ward was a pay patient, and the action was not brought because of negligence, but for alleged breach of contract. At the second trial, last December, the jury disagreed. The third trial was last week, and as a result, the plaintiff was awarded $10,000 by Judge Gildersleeve and a jury of the supreme court. The decision is totally at variance with all precedent, and is likely to open the way for numerous suits against hospitals for real or fancied grievances.

MARYLAND.

DR. T. ROSS PAYNE has been appointed health officer of Baltimore County, to succeed Dr. H. Burton Stevenson.

DR. H. O. WALTON has been appointed health officer and physician to the jail of Anne Arundel County.

DR. CHARLES F. DAVIDSON of Queenstown has been appointed health officer of Queen Anne County.

DR. C. L. CECIL, the local health officer of Charles County, has contracted smallpox.

DR. O. H. W. RAGAN, Hagerstown, has been appointed health officer of Washington County, vice Dr. J. McPherson Scott.

DR. CHARLES A. WELLS, Hyattsville, has brought suit against the Baltimore and Ohio Railroad for $6000 for injuries received at a railway crossing.

DR. CHAS. L. MABBFELDT has been appointed sanitary officer of Catonsville; and Dr. J. C. Schofield, of Highlandtown and Canton, both in the same county.

DR. H. BURTON STEVENSON, secretary of the Baltimore County Board of Health, reports the smallpox outbreak at Sparrow's Point, a suburb of Baltimore, as checked. There are still 9 cases at the quarantine hospital, and 16 in the detention hospital.

Baltimore.

DR. I. EDMONDSON ATKINSON has resigned the chair of therapeutics in the University of Maryland.

DR. JOHN A. SCHULTE has been appointed vaccin physician and health warden, vice Dr. J. J. Valentine.

DR. G. W. TRUITT, a member of the late legislature, has been appointed chief clerk by the new state insurance commissioner. The salary is $2000.

THE REGISTER of the Johns Hopkins University, recently issued, shows that there were 231 students enrolled in the medical school, of whom 20 were in special courses.

THE SPRING state medical examination of applicants to practice medicine commenced May 16, and continued four days. Eighty-three persons were examined.

AT THE Hebrew Hospital, Dr. A. L. Rettaliata has been reelected resident physician in charge. Drs. Jos. Blum and Sidney Cone have been added to the visiting staff, and Dr. Jos. Seligman has been put in charge of the dispensary.

MR. HENRY WATERS presented to the city the keys and deed to the public bath-house at 131 and 133 South High street, May 17. Mr. Eugene Levering, president of the Public Bath Commission, made an address showing the necessity of public baths in crowded neighborhoods.

FIRST KOREAN DOCTOR.

The feature of the commencement exercises of the Women's Medical College, May 14, was the graduation of Dr. Esther Pak Kim, of Seoul, Korea. She is the first medical graduate in America from her native country, and the occasion was regarded as of sufficient importance to be observed officially by the representatives of Korea in Washington, two of whom were present. She will become a missionary in her native land.

ILLINOIS.

Chicago.

THE CAPITAL stock of the College of Physicians and Surgeons has been increased from $100,000 to $217,000.

DR. CLARENCE L. WHEATON, owing to illness in his family, is going to Colorado to engage in the practice of medicine.

THE REGULAR quarterly examination of the Illinois State Board of Health will be held at the Great Northern Hotel, July 11-13.

DR. G. FRANK LYDSTON has been appointed professor of genito-urinary surgery in the Chicago Clinical School vice Dr. F. Kriessl.

DR. R. R. CAMPBELL has returned from the Pacific Coast, where he has been for the past five months on account of his wife's health.

THE NEW Francis Williard National Temperance Hospital, at 167 South Sangamon Street, was opened May 17. The hospital will accommodate thirty patients, and has twelve nurses in attendance.

DR. JACOB FRANK sailed for Europe May 19, via the Hamburg-American liner *Graf Waldersee*. He goes as a delegate from the AMERICAN MEDICAL ASSOCIATION to the International Medical Congress that meets in Paris in August, where he will also read a paper.

A DIET kitchen for infants and children will soon be opened at Thirty-second and Wallace streets, in the building of the Rouse Mission of the Trinity Episcopal Church. Its object will be the provision of pure modified milk, modified foods, fruit juices and meat extracts for poor children. It will be under the medical direction of Dr. Geo. T. Palmer, and Dr. Marcus P. Hatfield will be the consulting pediatrician, while the detail work of the kitchen will be in the hands of the trained nurses of St. Barnabas Guild.

OHIO

DR. C. A. PROBST, Columbus, secretary of the State Board of Health, sails for Europe, June 5.

THE MEDICAL staff of the Cincinnati Hospital, represented by Drs. Eichberg, Packer and Holt, together with the board of trustees, have just selected the site on Price Hill for the hospital for consumptive and other contagious diseases. The legislature has granted $25,000 for the purpose, and a two-story brick, fifty feet in length and thirty in width will be erected.

VIRGINIA.

THE EXECUTIVE committee of the State Central Hospital, near Petersburg, has accepted the plans for the new addition to the main building, which will accomodate 160 patients and cost about $18,000.

Richmond.

SEVENTY-FIVE received the degree of M.D. at the commencement exercises of the University College of Medicine, recently.

AT THE commencement exercises of the Medical College of Virginia, May 10, forty received the degree of doctor of medicine. Dr. Chas. A. L. Reed, Cincinnati, made the address.

KANSAS.

TEN YEARS' PRACTICE QUALIFIES PHYSICIAN.

The supreme court has decided that under the provisions of chapter 68, laws of 1870, enacted "to protect the people from empiricism and to elevate the medical profession," a physician

who had practiced medicine for ten years prior to the taking effect of the act is qualified, but ten years of practice after the passage of the act confers no right on the practitioner. In this decision the supreme court reverses Judge Monroe, of Hays City, who held, in the case of the State vs. Wilson, that Dr. H. L. Wilson had complied with the law by practicing for ten years after its enactment.

Topeka.

AT THE last meeting of the city council the salary of the city physician was reduced from $200 to $50, the regular monthly salary. This is on account of the abatement of the smallpox epidemic, as there are now only fifteen cases in the city.

HOSPITAL DONATION.

Rev. Chas. Sheldon has offered to give the city $1000 on condition that the council appropriate a like sum for the purpose of erecting a detention hospital to be operated in connection with the city jail. The city has accepted his offer, and work on the hospital will be commenced at once. Dr. Sheldon's donation is from his share of the profits resulting from the Sheldon edition of the *Capital*.

DELAWARE.

THE TRUSTEES of the state hospital at Farmhurst have re-elected Dr. John J. Black, New Castle, president; Dr. Paris Carlisle, Frederica, secretary.

THE MEDICAL Examining Board has elected Dr. Irving Vallandigham, Middletown, president, and Dr. J. H. Wilson, Dover, secretary.

TENNESSEE.

A CLASS OF sixty was graduated from the Chattanooga Medical College, at the recent commencement.

A CONSOLIDATION of the *Memphis Lancet* with the *Memphis Medical Monthly* is announced, and in deference to the seniority of the latter journal the name of the new publication will be the *Memphis Medical Monthly*.

IOWA.

DR. J. C. SHRADER, Iowa City, has been elected president of the State Board of Health.

NINETY-TWO applicants have passed the medical examination and been granted certificates to practice medicine in the state.

NEBRASKA.

FIFTEEN STUDENTS were granted diplomas from the Omaha Medical College, at the commencement exercises held early in the month. David R. Kerr, chancellor of the University of Omaha, conferred the degrees, and Prof. Henry Ward, of the University of Nebraska, addressed the class on "The Physician as a Scientist."

CALIFORNIA.

DR. J. F. KITCHINGS, Oakland, has been re-elected president of the State Board of Health.

DR. DRIESBACH SMITH has resigned as assistant in the Napa State Hospital, and will be connected with the Asylum for the Insane, at Livermore.

Los Angeles.

THE TOTAL number of deaths in Los Angeles for April was 142, or an annual rate per 100 of 16.54 per cent. Twenty-six were from pulmonary consumption, 2 of the persons being natives of the Pacific Coast. There were 281 cases of contagious diseases, as follows: diphtheria, 19; scarlet fever, 14; typhoid fever, 20; measles, 228.

DR. STANLEY P. BLACK, professor of histology, bacteriology and clinical microscopy, medical department of the University of Southern California, is suffering from a serious attack of blood-poisoning, there being special involvement of the glands under the pectoralis major and along the clavicle. Infection occurred through a slight wound in the finger while handling pathologic specimens.

CANADA.

DR. D. A. SHIRRES, Montreal, has returned from Baltimore, Md., where he has been carrying on research work in neurology.

LAST WEEK the death-rate in Montreal was more than usually heavy, 151 being registered. Of these, five were from typhoid fever.

THERE IS an epidemic of diphtheria in the barracks of the Northwest Mounted Police stationed at Regina. The disease was brought in by recruits. The hospital is full.

LIEUT.-COL. GEORGE STIRLING RYERSON, Canadian Red Cross Commissioner in South Africa, has been appointed British Red Cross Commissioner with Lord Roberts' headquarters.

DR. COLIN A. CAMPBELL, of the house staff of the Toronto General Hospital, has been appointed surgeon to the S. S. *Tartar* of the Canadian Pacific's line from Vancouver to Yokohama.

DR. ALFRED A. LOEB, who was graduated from McGill last spring, and who has since occupied the position of house physician of the Philadelphia Maternity Hospital, has been re-elected.

FIFTY HOUSES in Montreal are placarded with scarlet fever notices. The civic hospital still continues full of these patients. So far the health officer is at a loss to account for the prevalence of the disease.

THE FOLLOWING practitioners are at the head of the movement in Montreal to establish a free consumption sanitarium for the city: Drs. LeCavaillier, Mignault, Adami, Campbell, Johnston, Hervieux, Marsolais, Lesage and Dube.

THE TORONTO osteopath was up for trial last week and got off "scot free." The daily papers are reaping the benefit of it by the appearance of his card in their columns. Apparently we have not heard the last of osteopathy in Ontario.

THE "CANCER DOCTOR" and his practitioner friend of this city, who, it will be remembered, were to be tried at the May assizes, for manslaughter, are now breathing easier, the grand jury having found "no bill."

THE DOMINION government is shortly to appoint a quarantine officer at Windsor. The necessity for this is shown by there having been 2700 cases of smallpox in Illinois, whence there is much travel into Ontario.

PASSENGERS on the R. M. S., *Empress of India*, which is held in quarantine off Williams Head, near Victoria, B.C., are not permitted to leave the boat, pending instructions from Ottawa, there being a rumor that either plague or smallpox had appeared among the 100 steerage passengers.

TWO PHYSICIANS of Montreal are being sued for $1099 damages, by a laborer who received a railway injury to one foot. His claim is that his foot was amputated while under the influence of an anesthetic, although promise was given that the operation would not be performed.

DR. MCCARREY, milk inspector of Montreal, has reported that the milk-supply is much purer than that of the spring of 1899. A year ago twenty-five dealers were summoned for supplying an inferior quality; so far this season only two have been similarly dealt with.

TORONTO UNIVERSITY is advertising for two professors for the medical department. On account of the death of Dr. J. Elliott Graham, the professorship of medicine and clinical medicine is vacant, and the professorship of pathology also by the resignation of Dr. John Caven.

THE SECRETARY of the Provincial Board of Health of the Province of Quebec has issued a statement of the smallpox situation in that province. Since the outbreak of the disease in the lower part of the province, in January, there have been 230 cases and only two deaths. At the present time there are thirty cases.

DR. PAUL A. GILLESPIE, a graduate of Toronto University, who was referred to in these columns some time ago as President Kruger's physician, having been commandeered at the outbreak of hostilities for service in the Boer hospital corps, has again become associated with the British service after the taking of Boshof by Lord Methuen's forces. Previous to the war he was a practitioner in Winburg, Orange Free State.

TRINITY MEDICAL COLLEGE.

So far as Trinity is concerned, the session is finally closed. On the 17th inst., between fifty and sixty were made recipients of diplomas making them Fellows of Trinity Medical College. At the commencement exercises, held that afternoon,

the Dean of the College, Dr. Geikie, presided, and as usual, gave some good, sound, practical advice to the graduating class. In the evening the members of the class held their class dinner. On the following day Trinity University conferred about seventy degrees in medicine; and the Trinity Medical Alumni Association held its eighth annual reunion. Dr. Allen Baines, Toronto, was elected president for the ensuing year.

MONTREAL GENERAL HOSPITAL.

Dr. F. G. Finley, the secretary, has presented his annual report, showing that the work of the past year was greater than at any other time, though the receipts have fallen away to some extent. The ordinary income amounted to $76,421.72, and the expenditure to $81,570.75. The income was $1605.23 less than the previous year, while the expenditure was $1082.50 more. The total number of in-door patients treated to a conclusion during the year was 2824, an increase of 94 over the preceding year. Of these, 189 remained over from the preceding year, and 2810 were admitted during the year; and 175 remained in the hospital at the end of the year. There were 2629 discharged, and 195 died in the hospital, making a total of 2824 treated during the year. The average number of patients in the wards during the year was 167; the average number of days in the hospital was 21.3; and the aggregate number of days in the hospital by all patients was 60,078, a decrease of 2966 over the previous year. Of the in-door patients treated to a conclusion, there were 1795 males, and 1029 females. The death-rate was 6.5 per cent., or, excluding 106 dying within three days after admission, 3 per cent. In the out-door department there were 37,373 consultations, an increase of 2295. The medical superintendent, Dr. Von Eberts, was appointed again to the position. In consequence of the resignation of the president, F. Wolferstan Thomas, Esq., Mr. James Cathern was elected president.

Correspondence.

Improvements in Medical Education.

CHICAGO, May 19, 1900.

To the Editor:—I have within the past few years been delivering special lectures at medical schools both in the East and in the West, and during that time I have made some observations concerning the state of medical education in this country, which, though not new to the readers of THE JOURNAL, may, nevertheless, be of interest to them. It need hardly be said that, wherever I went, I found such an *esprit de corps* among the members of the profession as, in spite of their many differences in theory and practice, constituted them a real brotherhood. There was also manifested in the schools an earnestness and candor which argues well for the future. The good work accomplished was so patent that I may be excused from dwelling upon it at any greater length. In pointing out some of the defects in the present system of medical education, I do not intend to asume the rôle of a carping critic. My sole object is to be of service to the cause of scientific medical practice.

In viewing the present system one does not have to seek long to find the root-cause of most of its defects. This lies to a large extent in the method of organization and conduct of the medical schools. The almost universal type of organization and conduct of the medical schools is that of a stock company. The school is owned and controlled by a few leading physicians who constitute themselves its professors. These stockholders, who usually have a large private practice, hire instructors in pathology, chemistry, etc., at salaries as low as possible. They elect as dean or secretary of the school a good business man who knows how to secure a large number of students and so can make the institution a paying investment—for the stockholders. In some cases, when this has been accomplished, the stock is then "watered" in order that it may be sold at a greater profit to new professors, and these in turn repeat what their predecessors have done. By a little play on words such a corporation might be styled "a traction company," organized for the purpose of *drawing* large dividends. Even without dividends the stockholder-professor regards it a paying investment.

From this brief description it is clearly seen that the money does not go to the hard-worked and poorly-paid laboratory man. The institution, on the contrary, is founded and run to further the selfish ends of the professor. Moreover, in such a school the leading professors, being general practitioners, consider themselves capable of teaching everything or anything, and hence such anomalies as the following are not uncommon: Dr. ——, professor of physiology, hygiene *and* demonstrator of anatomy; Dr. ——, professor of obstetrics *and* preventive medicine; Dr. ——, professor of children's diseases *and* medical jurisprudence.

Then, too, the professor, being a busy practitioner, does not have time to prepare for his classes. On his way to college he "thinks up" what he will give the boys in his morning lecture. Or he studies a text-book and gives it to them just as he read it the night before. I have seen such a professor, after a busy day, bolstered up in bed "bucking up" for the next morning's recitations. I have also read stenographic notes on lectures, every point of which was presented in the same manner and in the same order as found in some well-known text-book on the subject. Knowing the text-book used, the entire course could have been arranged by an undergraduate.

Furthermore, I have heard lecturers spending much time in describing laboratory methods, who could scarcely tell a staphylococcus from the ameba coli. I found one who could not even focus the microscope. He was the "head" professor, and his income from practice was $25,000 a year, gained largely through college association. (The bacteriologist and pathologist, devoting most of his time to the school, received $600 a year.) In a recent report on the financial condition of a certain college, it was shown that its receipts were $32,000. The expenses were $6000, leaving a net profit of $26,000.

It is clear that under such actual conditions as those outlined above, where the selfish financial principle is at the basis of the medical institution, the departments which require the largest expenditure of money for equipment will be the most hampered and crippled. This will be most keenly felt by the laboratory of the school, the place where all scientific work must begin. If the graduates of our institutions have not been deeply grounded in modern laboratory methods, how can we hope for real progress in the medical profession? It is also clearly seen that under such circumstances the real workers in the institution will be continually underpaid, and so there will be no stimulus toward proficiency. Only inferior talent will thus be attracted to such positions. Moreover, where the personal and selfish interest governs the faculty, all appointments will be conditioned by it, rather than by the sole condition of fitness and competency.

But to see the worst features of the present system, one must view it from the standpoint of the student. And in the first place a protest must be made against the prevailing didactic lecture and quiz method, which employs, almost exclusively, the one intellectual faculty—memory. We need to cultivate in the student the truly scientific method, *which emphasizes inductive reasoning based on observation and experiment.* One recent graduate not long ago remarked to me: "I do not remember one thing my professor taught in his didactic lecture, but the clinics I can remember very distinctly, not only the cases, but even the details of diagnosis, pathology, and therapeutics." The old method is a suspension of ideas in the mind in such a way that they do not become incorporated with past or present practical experience. Thus the student contracts a sort of "dyspepsia of the mind," or "cerebral indigestion." Moreover, by it the student's attention is directed away from the empirical and practical to the theoretical. He conceives the notion that the only equipment which a successful practitioner needs is a scalpel, scrap-blank and pencil, and a mahogany-top table. The thirty patients in his two hours a day in the business center is the outcome of this faulty educational method. Only an infinitesimal amount of what he has been taught can be put to any practical use by him. Nor is the student given the ability to acquire the right kind of practical knowledge. In the post-graduate work

I have been enabled to observe the results of these methods of education on the new as well as old graduates and find the grossest ignorance in matters relating to laboratory equipments, scientific medicine, and the physical methods of diagnosis and treatment.

This leads me to insist that all medical students should be given a practical knowledge of: 1. Hydrotherapy in all its many branches and forms. The physiologic effects of heat and cold constitute so vast a field that they ought to be known by the M.D., no matter what branch of medicine he takes up. I have known students who did not know the difference between the action on the system of water at 40 C., and of water at 55 C. 2. Hot and cold air baths have a place in therapeutics that can not be ignored by the educated physician. Only the ignorant product of the recitation room shuns these practical methods and relegates them to the domain of empirical quackery. 2. Medical gymnastics, such as physical exercise, massage, etc., is now a necessity in medical education. Under the direction of a competent physician grounded in the science and practice of medical gymnastics it would be of far-reaching value to the school, both for the professors and students, if for no other purpose than the personal benefit derived by the hard brain-racked student; the daily exercise of this branch of medical education would be a god-send. It would be a conservative and expedient policy, but the advantages are not confined to such narrow and selfish ends as the physical welfare of the student. Other professors on the faculty of such a school would soon become practically interested, to their own benefit as well as that of their patients. Students would learn to give massage to each other. The recent valuable work of Schott's method of cure for diseases of the heart is only another illustration of the wide application of the physical and mechanical supplementing the hydrotherapeutic method of treatment of this otherwise incurable disease. Take only the same time to teach this method as is required to teach the action of the digitalis series, and it will be far more valuable. Other physical methods, such as are used in the exploration of the cavities and organs of the body by means of sounding instruments, etc., for both diagnostic and therapeutic purposes, should also be taught in the medical school. Early education in those physical methods not only interests the student in "theory and practice" but develops a taste for exploration and investigation.

Electricity was formerly the useful property of quacks. Medical science has raised it to a high place in therapeutics. Electricity used internally and externally in all forms of application should be taught theoretically as well as practically. The therapeutic advantages of the electric light have recently added another useful form of electricity that may displace many drug prescriptions, but with greater success in the beneficial results derived. Finsen has shown most marvelous results from the use of the light in lupus.

Dietetics in all its branches is practically neglected in medical schools. That part of dietetics concerning the chemistry of cooking and the preparation of food is as unknown to the medical student as if the study did not belong to the science of medicine. It has a wider application and perhaps more necessary use than any single branch. Books on dietetics can not teach cooking and preparation of food. It must be learned in the diet kitchen. Discharge the cooks in the hospital and give each student an opportunity under an educated chef. If the old methods of instruction are thus supplemented by these more modern ones, the medical schools of our country will have taken a distinct step forward and the men who graduate from them will be fitted to gain the confidence of the public even more than they have in the past. If, at the same time, our medical schools could not only be affiliated with, but *incorporated into* the colleges and universities of the land, the mercenary spirit would, to a large extent at least, be wiped out, and the effect of a scientific atmosphere would be wholesome to both professor and student. In this way petty jealousies and rivalries which often result in the establishment of new schools with no endowment, poor teachers, and low entrance requirements, would be eliminated, and the standard of the whole profession raised.

FENTON B. TURCK, M.D.

Book Notices.

TREATMENT OF DISEASES OF THE NERVOUS SYSTEM. A Manual for Practitioners. By Joseph Collins, M.D., Professor of Nervous and Mental Diseases in the New York Post-Graduate Medical School. Illustrated by Twenty-three Engravings. Cloth. Pp. 602. Price, $5. New York: William Wood & Co. 1900.

This volume is practically a manual on nervous diseases, in which special attention is given to therapeutic methods. It begins with a section on the etiology and the prevention of nervous diseases, followed by a somewhat longer one on the general application of the remedial measures. The bulk of the book is taken up with the consideration of the special forms of diseases and the remedies and measures applicable to them. It will be seen, therefore, that it is far more than merely a therapeutic work. The first section, on cause and prevention, is a very judicious summary of the general facts as known in regard to etiology and the prophylaxis of these disorders, and calls for no further special comment. In the second section the author's views are plainly expressed on the subject of serumtherapy, and he seems to believe that thus far only the thyroid is really of decided value. As regards the use of the bromids, probably the most misused drugs in the Pharmacopeia, he makes no mention of their occasional excitant effect, nor is it mentioned in his special article on epilepsy. In asylum practice this is sufficiently common to be noticed, and it is a little remarkable that while it has been observed by some of the very earliest experimenters, it has been such a late discovery by some of our leading neurologists. The author's opinion of hydrotherapy is a judicious one, and the same is true as regards electricity, where he certainly does not follow the extreme opinions of some specialists. Massage is more briefly treated, but on the whole we can agree with Collins in his estimate of its use; the same is true of his remarks as regards hypnotism. The treatment of special disorders, which takes up the greater part of the book, may be said to be according to the latest light on this subject, and a safe guide to the general practitioner. There is no mention, however, of the Baccelli method in the treatment of tetanus with carbolic acid, with which some remarkable results have been reported of late. Nor is the use of cannabis indica in migraine so entirely obsolete as might be inferred from its lack of mention. As regards the surgical treatment of epilepsy, he holds the view that is probably now held by the majority of those who have had experience with the disease, that it is practically useless as regards any permanent benefit and that even when the disease can be localized it is questionable whether serious surgical operations, such as trephining, is often justifiable, at least in other than very recent cases. The present claims of some ophthalmologists are hardly more than mentioned.

Excepting in the discussion of a few disorders, such as headache, very little in the way of prescriptions and formulas is given. The treatment is stated in a general way, and any one who looks here for special prescriptions is liable to be disappointed.

Dr. Collins writes in a very lively and readable style and it sometimes even appears that the style gets away with him a little. One or two of his expressions seem a little odd, for example such as that on page 113, where it would seem that he is calling male masseurs ancillæ. These few minor criticisms, however, do not imply any depreciation of the work as a whole; we have nothing but commendation for the book, and it will be a most valuable addition to the library of every general practitioner.

A DICTIONARY OF TERMS USED IN MEDICINE AND THE COLLATERAL SCIENCES. By Richard D. Hoblyn, M.A. Thirteenth Edition. Revised Throughout, with Numerous Additions. By John A. P. Price, M.D., Late Physician to the Royal Hospital for Children and Women. Cloth. Pp. 838. Price, $1.50. Philadelphia: Lea Brothers & Co. 1900.

This is an American reproduction of the well-known English work which has the sanction of long favor, this being its thirteenth edition. Special attention appears to be given to

the etymology and correct Latinity, etc., of the terms here included. It is not as full as some American dictionaries even of similar size, but we do not believe there have been many important omissions.

MANUAL OF ORGANIC MATERIA MEDICA AND PHARMACOGNOSY. An Introduction to the Study of the Vegetable Kingdom and the Vegetable and Animal Drugs. Comprising the Botanical and Physical Characteristics, Source, Constituents, Pharmacopeial Preparations, Insects Injuries to Drugs, and Pharmacal Botany. By Lucius E. Sayre, B.S., Ph. M., Dean of the School of Pharmacy. Second Edition. Revised. With Histology and Micro-technique by William C. Stevens, Professor of Botany in the University of Kansas. With 574 Illustrations, the Majority from Original Drawings. Cloth. Pp. 684. Price, $4.50. Philadelphia: P. Blakiston's Son & Co. 1899.

This volume is clearly intended as a work for the pharmacist, to the physician it will be of use simply for reference. It is practically a treatise on medical botany. The section on animal remedies is short and includes only the older pharmacopeial preparations. In this edition the author has left out the chapters on elementary botany, from the earlier one, and replaced them by an extensive section on histology and microtechnique. This, with some other alterations mentioned in the preface, ought to make it still more useful to the large class for whom it has been prepared. Its very numerous illustrations are a useful aid to the text, and the book as a whole appears to be a very valuable treatise on its specialty.

A MANUAL OF MODERN GASTRIC METHODS, CHEMICAL, PHYSICAL AND THERAPEUTICAL. By A. Lockhart Gillespie, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Materia Medica and Therapeutics in the School of Medicine of the Royal College, Edinburgh. With a chapter on the Mechanical Methods Used in Young Children. By John Thomson, M.D., F.R.C.P., Assistant Physician, Royal Hospital for Sick Children, Edinburgh. Cloth. Pp. 175. Price, $1.50. New York: William Wood & Co. 1899.

This book seems to be very well fitted to meet a want. Most general practitioners have little practical experience in some of the methods of gastric diagnosis and treatment here described, the utility of which in certain cases is undeniable. The author has described them in a way to be clearly intelligible, and where his text requires it has supplied the needed illustrations. The book is one to be safely recommended to any one who treats gastric disorders, as giving information not so readily picked out of the larger works on the subject, and in a very convenient form. The reputation of the author is a guarantee of its accuracy in details.

MENTALLY-DEFICIENT CHILDREN. Their Treatment and Training. By G. E. Shuttleworth, B.A., M.D., Medical Examiner of Defective Children, School Board for London. Second Edition. Cloth. Pp. 180. Price, $1.50. Philadelphia: P. Blakiston's Son & Co. 1900.

The first edition of this little work being out of print and still in demand, Dr. Shuttleworth has reproduced it in this volume, with the addition of a couple of chapters giving an account of an official inquiry in which he took part, on the systems of education of the feeble-minded. The results of this inquiry were embodied in a statute which is printed in the appendix. The book has been and will continue to be one of the best brief accounts of its subject in our language, and it is well that it has again been made available.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Assisted by Charles Adams Holder, M.D., Assistant Demonstrator of Therapeutics in the Jefferson Medical College. Volume I, March, 1900. Surgery of the Head, Neck and Chest. Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia and Influenza. Diseases of Children. Pathology. Laryngology and Rhinology. Otology. Cloth. Pp. 428. Price, $250. Philadelphia: Lea Brothers & Co. 1900.

The first number for the year, of this quarterly serial in book form, includes the usual digests, as indicated in the title. The first of these is a valuable résumé of the general literature, by Chalmers DaCosta, which is both critical and full, and will be found to be a most useful one. The second, by F. A. Packard, on infectious diseases, deserves equal commendation, and is noticed editorially in this issue. Blackader's digest on diseases of children is well done, though the literature is not so full as in the two above noticed, and the section on pathology, by Hektoen, is, as might be expected, thorough and complete, as regards the chief advances within the past year. The two concluding sections, on laryngology and rhinology, by A. Logan Turner, and otology by Robert L. Randolph, while in the main useful critical résumés of papers that have appeared, contain more omissions, if we may use an idiom, than any of the others in the book. A comparison with the recent published work of Head and Andrews will show this. As a whole the volume fully keeps up the reputation of the series.

ON FRACTURES AND DISLOCATIONS. By Professor Dr. H. Helferich, of Griefswald. Illustrated with 69 Plates and 126 Figures in the Text, Drawn by B. Keilitz. Translated from the Third Edition, by J. Hutchinson, Jr., F.R.C.S., Surgeon of the London Hospital. Cloth. Price, $3. New York: William Wood & Co. 1899.

This English translation is from the third edition of the German work, and as such it will be of value to American readers. The usefulness of illustrations is well shown by the fact that three-quarters of the book is thus taken up, the text filling less than 150 pages.

Association News.

Board of Trustees.—There will be a meeting of the Board of Trustees of the AMERICAN MEDICAL ASSOCIATION in Room 237, Hotel Dennis, Atlantic City, N. J., at 10 a. m., Monday, June 4, 1900. Alonzo Garcelon, M.D., President.

Membership Receipts.—Members attending the Atlantic City meeting, and who have paid their dues for 1900, are reminded of the necessity of taking their receipts with them if they wish to avoid annoyance when they register.

The Official Program.—In order to avoid misunderstandings and to protect the interests of advertisers, attention is called to the fact that there is but one official program. This program is copyrighted by the Board of Trustees and contains no advertising matter.

Delegates to the Meeting of the American Medical Association.—Secretaries of societies are requested to forward the names of delegates as soon as possible after these are appointed or elected. George H. Simmons, M.D., Secretary, 61 Market St., Chicago.

General Business Committee.—The first meeting of the General Business Committee of the AMERICAN MEDICAL ASSOCIATION will be held at the Hotel Dennis, Atlantic City, N. J., on Monday, June 4, at 4:30 o'clock, in room 238. Subsequent meetings of the Committee will be held at the same place and hour, every afternoon, during the meeting of the ASSOCIATION, unless otherwise directed by the Committee. In order that the business of the ASSOCIATION may be effectively transacted, it is very important that all the members of the Committee should attend all its meetings. L. DUNCAN BULKLEY, Acting Secretary.

Railroad Rates for Atlantic City Meeting.—As previously announced in these columns, the Trunk Lines Association and the Central Passenger Association have granted one and one-third fare rate on the certificate plan for the Atlantic City meeting. Tickets will be on sale in the territory of these Associations from May 30 to June 7, and good to return to June 23. Action has also been taken by the Western Pasenger Association and the same rate announced from all points in its territory, tickets also to be sold on the certificate plan, the dates of sale being May 30 to June 5. The return limit was made June 12 by this Association, but on account of the later limit allowed by the others, it will probably be changed to correspond with that of the Trunk Lines and Central Passenger Associations. The certificates will be signed at Atlantic City by Dr. W. Blair Stewart, N. E. Cor. Pacific and North Carolina Avenues, and a special agent

will be present on June 6, 7 and 8. The territory covered by the two first-named includes practically everything north of the Ohio River and east of the Mississippi from Cairo to St. Louis, thence east of a line drawn from St. Louis to Chicago, through Jacksonville, Decatur, Gibson, etc. The Western Passenger Association's territory to which the certificate plan usually applies comprises points west of Chicago, Peoria and St. Louis, including Oklahoma, Indian Territory, Kansas, Colorado, Utah, Nebraska, South Dakota, Minnesota, Wisconsin, Iowa, most of North Dakota and Missouri, and northern Michigan and northern Illinois.

Deaths and Obituaries.

JACOB R. WEIST, M.D., Richmond, Ind., died after only a few days' illness, May 14, aged 66. He received his degree in 1861 from Jefferson Medical College, and in 1862 was appointed assistant-surgeon of the Sixtieth Ohio infantry, and later was transferred to the Fourth Ohio cavalry. He subsequently became chief operating surgeon in the First Division of the Eighteenth Army Corps and finally was medical inspector and medical director of the Twenty-fifth Army Corps. He was a frequent contributor to medical journals on subjects of surgery and hygiene. He served as city health officer of Richmond, and as secretary and president of the Wayne County Medical Society, and as president of the Indiana State Medical Society. He was a member of the AMERICAN MEDICAL ASSOCIATION and represented the ASSOCIATION in the International Congress in London in 1881. He was one of the projectors of the American Surgical Society, and served as its first secretary.

EDWARD C. HUSE, M.D., Rockford, Ill., died May 14, aged 65 years. He was born in Massachusetts, and after graduating at Harvard, taught school until 1861, when he went to New York and attended the College of Physicians and Surgeons. Soon after receiving his degree he located in Rockford, where he had since remained. He has been a frequent contributor to medical journals, and in great demand for expert testimony.

LEWIS P. LAYTON, M.D., died at his home in Buffalo, N. Y., May 14, after a lingering illness of eight years. He was born in Erie County in 1819, and received his early education in the Springville Academy. In 1845 he was graduated from the Geneva Medical College, and immediately began the practice of medicine in Buffalo. He held many positions of honor in the medical fraternities and in local politics.

WILLIAM R. RAMSEY, M.D., Norristown, Pa., died in that city May 13, aged 68 years. He was assistant-surgeon, U. S. A., during the Civil War, and was in charge of the field-hospital at the battle of Gettysburg. He was later transferred to the frontier, and on his return practiced in Hazleton and Norristown.

EDWARD F. UPHAM, M.D., Randolph, Vt., died of apoplexy, at his home, April 15, aged 75 years. He was pension examiner for twenty-six years and had several times been president of the Vermont Medical Society, and was a member of the AMERICAN MEDICAL ASSOCIATION.

EDGAR BOLLES, M.D., Macomb, Ill., died May 14, aged 63 years. He was born in Ohio but spent most of his early life in Illinois. He was graduated from the Detroit Medical College in 1869, and after being an assistant to a physician there for some time located at Macomb.

ROBERT F. GRUBAUGH, M.D., Mansfield, Ohio, died very suddenly May 15, aged 36 years. He was graduated from the Western Reserve Medical College at Cleveland in 1888, and had since practiced medicine in Mansfield. He was secretary of the North Central Ohio Medical Society.

R. G. FURST, M.D., Lockhaven, Pa., died May 12, aged 28 years. He was a graduate of the University of Pennsylvania and for two years was connected with St. Joseph's Hospital in Philadelphia.

J. V. HARRIS, M.D., Canton, Ill., died May 7, aged 61 years. During the Civil War he served in the Sixty-fifth Ohio Vol. Inf. He was graduated from Rush Medical College, in 1871, and had since practiced in Canton.

C. W. SYDNOR, M.D., died in Stratsburg, Va., May 11, aged 67. He served as surgeon in the Stonewall Brigade of the Confederate Army.

ARCHIBALD MITCHELL, M.D., formerly a practitioner of Kingston, Mich., but lately a resident of Los Angeles, Cal., died May 17. He graduated from the Medical Department of the University of Michigan in 1872.

WILLIAM SOULE, M.D., Jewett City, Conn., died May 15, from injuries received by being thrown from his carriage five days before. He was born in Chaplain, Conn., August 24, 1827, and was graduated from Yale University in the Class of 1851.

CHARLES H. VOORHEES, M.D., Jefferson Medical College, 1850, died at his home in New Brunswick, N. J., May 13. He served in the Union Army during the Civil War, and was for a time in Libby Prison.

DEATHS ABROAD.

We note the deaths of:

S. Saxtorph, professor of surgery at Copenhagen.

L. H. Petit, M.D., Paris, editor of *Revue de Tuberculose.*

G. Planchon, M.D., Supt. of Paris Ecole Sup. de Pharmacie.

P. Sgrosso, Privat-docent of ophthalmology at Naples.

E. van Millingen, professor of ophthalmology at Constantinople.

E. Grimaux, *agrégé libre* at the Paris Faculté de Médecine.

R. v. Limbeck, professor of internal medicine at Vienna, known for his research in experimental pathology.

Dr. Apostoli, of Paris, whose name has been so prominently connected with the application of electricity to gynecology.

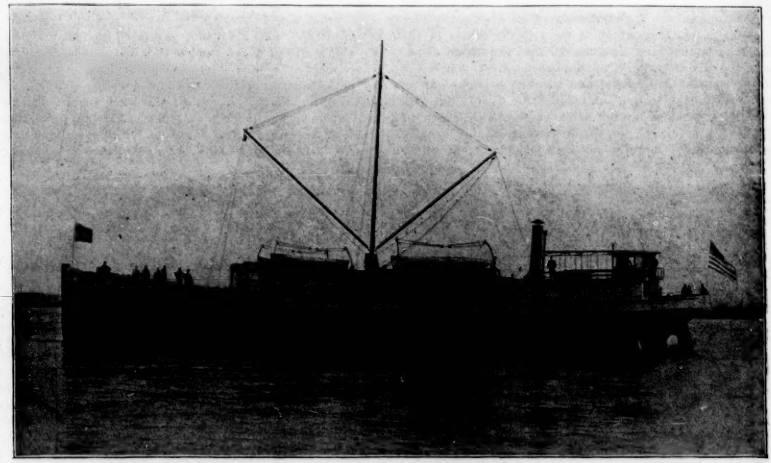
Miscellany.

Early Diagnosis of Tuberculosis.—Landouzy compares the rectal temperature immediately after a walk of three or four hours in the afternoon and morning. If the temperature in the afternoon is higher than in the morning, he considers himself justified in affirming the existence of tuberculosis. Bozzolo also called attention, at the recent Antituberculosis Congress, to the significance of albuminuria as a precursor of tuberculosis, also of tachycardia *sine materia;* rheumatoid pains; certain forms of anemia, and zona.

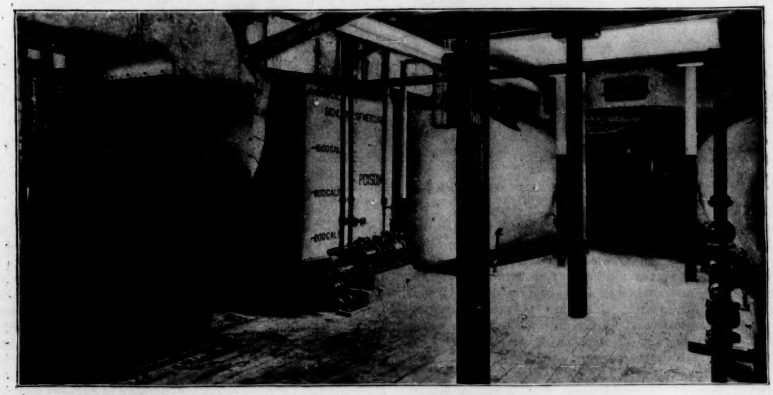
Climate and Tuberculosis.—Lannelongue's recent experience with guinea-pigs and climate is disconcerting, to say the least. As described in the *Semaine Méd.* of May 2, he inoculated 150 guinea-pigs on the same day, with cultures of the Koch bacillus, and under identical conditions; he sent 50 to the mountains, 50 to the seashore, and placed the remaining 50 in the laboratory cellar, where they were deprived of light and almost of air. The last-named batch survived the longest and in larger numbers. The same experiment was repeated twice on the same number and with the same results each time.

Deprivation of Salt with Bromid Treatment.—THE JOURNAL has referred to the advantages claimed by Richet and Toulouse for hypochloruration, as they call it, which is, reducing the amount of salt in the food during the treatment of epilepsy with bromids. They assert that the effect of the bromids is much enhanced by the absence of salt; and in a recent communication (*Jour. de Méd. de Paris,* April 29), Toulouse states that adults, as a rule, eat too much salt, and thus inflict unnecessary labor on their kidneys, and that more is needed with a vegetable diet than with a mixed one. He reports tests with a diet containing 2700 calories, 20 gm. nitrogen and 2.19 gm. salt. This was given to twenty adult epileptics, all old, established cases, for a period ranging from 21 to 208 days, while 1.7 to 5 of bromid was administered. The subjects did not appear to suffer in any way from the deprivation of their usual quantity of salt. The tabulated results of the tests show a remarkable decrease in the number of seizures during the hypochloruration, falling from 99 to 2; 25 to 0; 67 to 13; 47 to 2, etc., although in many instances a larger amount of bromid had been administered during the control period. In eight cases there were no seizures nor vertigoes after the first fifteen days of salt reduction.

Disinfecting Steamer "Sanator."—By courtesy of *Marine Engineering*, we present illustrations of the disinfecting steamer *Sanator*, for the U. S. Marine-Hospital Service. In the March number of this publication, C. M. Green, First Assistant Engineer R. C. S., Superintendent of Construction M. H. S., describes this vessel as an interesting example of unusual marine construction, just completed, for service at Havana. The *Sanator* is provided with the most improved disinfecting and fumigating machinery, the whole plant being a decided improvement on that of the *Protector*, which, during the fall of 1898, thoroughly demonstrated the efficacy of a floating disinfecting plant by its successful and rapid disinfection of troops and troop-ships at Montauk Point. The *Sanator* is undoubtedly the most complete floating disinfecting plant in the world, and is a low-powered steam vessel capable of making a maximum speed of eight knots an hour. Her hull is framed of Delaware oak, planked inside and out with yellow pine and decked with Oregon pine, the use of wood being necessary from the fact that a steel hull is quickly corroded by the solution of bichlorid, used in considerable quantities on the vessel and which can not be kept out of bilge. Her dimensions are as follows: Length over all, 161 ft. 6 in.; length from forward edge of stem to after edge of stern post, 149 ft. 11 in.; beam, extreme on water line, 32 ft.; depth of hold from top of deck beams at side to top of ceiling at keelson, 12 ft.; depth from top of main deck beams at side to top of keel, 13 ft. 3 in.; camber of deck beams, 6 in.; draft, normal, forward, 7 ft. 3 in.; draft, normal, aft, 8 ft. 3 in.; displacement, normal, 640 tons; displacement, tons per inch at L. W. L., 9.4 tons; distance center to center of frames, 26 in.; depth of keel below bottom planking, 9 in. There are two steam chambers located side by side for disinfecting, their forward ends projecting through the bulkhead into the infected compartment of the hold. They are cylindrical, about sixty inches in diam-

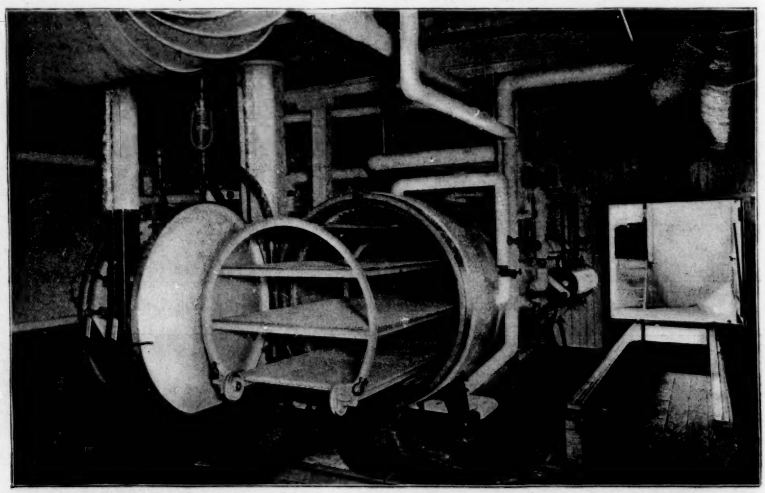


DISINFECTING STEAMER SANATOR FOR U. S. MARINE HOSPITAL SERVICE AT HAVANA, CUBA.



VIEW IN AFTER END OF HOLD OF S. S. SANATOR LOOKING TOWARD STARBOARD SIDE.

eter outside and sixteen feet long, and each is constructed with an inner and outer steel shell, these 1¾ inches apart, forming a steam jacket. The chambers are built to carry a working pressure of 10 pounds per square inch. They are covered with magnesia and fitted with a complete system of steam and exhaust pipes, drains and traps. Near the bottom and through each runs a double track of angle iron with movable extensions, to transfer-tables at both ends, and along these tracks can be moved cars of light wrought-iron construction containing the goods to be disinfected. These cars are provided with removable galvanized wire trays, brass hooks, and galvanized-wire folding baskets for use according to the character of the goods to be disinfected. They are loaded with infected goods or clothing while on the transfer-tables in the infected compartments, and then pushed into the steam chamber where the disinfection is accomplished, after which the doors of the chamber are opened and the cars brought out on the after transfer-tables and unloaded, the disinfected materials being then taken up the after hatch. The length of time for disinfection depends on various conditions, but usually occupies about thirty minutes for each chamber. Steam is



AFTER-ENDS OF DISINFECTING CHAMBERS—CARRIAGE PARTLY RUN OUT IN FOREGROUND.

kept in the jackets of the chamber during the operation so that the materials disinfected are thoroughly dried before being taken out. Four cars and four transfer-tables are provided. There is also an apparatus for generating formaldehyde gas and ammonia gas, and the vessel is to be provided with four Kinyoun-Francis autoclaves, which are portable formaldehyde gas generators and can be taken into the cabins or rooms of a vessel alongside, for disinfecting purposes. There are two sulphur furnaces in the forward hold compartments and sulphur bins holding forty barrels of sulphur. The bichlorid of mercury apparatus, an 1800-gallon steel tank, is located in the hold amidships on the starboard side, and above this in the deck house is a 40-gallon mixing tank with connections for steam and water, as well as a connection to the large tank below. The proper quantity of the chemical is mixed in the small tank and allowed to flow into the large one, into which has already been pumped a requisite quantity of water for making the solution. Then there is a pumping apparatus, and by means of a 2-inch hose, and spray nozzles, the solution can be sprayed even in any part of a vessel alongside..

Medical Women in Italy.—Fifteen women graduated at the Italian universities between 1870 and 1897 in medicine and surgery, and one has been appointed "commune physician" at Montiglio, the first woman to fill this position. She is the daughter of Dr. Musso and completed her studies at Pavia and Zurich.

Experiments on Human Beings.—The recent discussion in the German Parliament, of Neisser's inoculations of a few prostitutes with syphilitic serum, was the occasion of a violent attack on the profession as a whole and denunciation of all experimental research, by a number of lay representatives of some prominence. Among those who replied, Ministerial Director Althoff, also a layman, protested against attributing to all, the faults of a few, and exclaimed: "The faults will nowhere meet with such severe disapproval as in medical circles, for physicians, in self-sacrifice and devotion to the welfare of suffering humanity, surpass all the other citizens of the state, and set them the noblest example." Virchow proclaimed the absolute necessity of finally testing remedies on man after conclusive tests on animals: "The conscience of the physician tells him what is right and what is wrong, and a code of ethics of the medical sciences is gradually being evolved, over the entire world, which as time goes on will prove more effective, more beneficent in its results, and be more respected than the deliberations of any peace conference." Kolle, in the *Deutsche Med. Woch.*, March 15, reviews various instances of experiments on man. The most audacious on record, and without any previous experience with animals, was the inoculation of millions of healthy persons in India with smallpox virus from patients with smallpox, which was practiced for centuries by the priests. A number of persons died as the results of these inoculations but the few were sacrificed for the benefit of the many, with the consent of the authorities. Jenner inoculated a healthy person with virus from an animal suffering from a disease the nature of which he only surmised, and Pasteur had the courage to inoculate a man with rabies. Mothers sometimes send their children "to catch the measles," and yet measles has quite a high mortality. Innumerable are the instances in which physicians have experimented on themselves, and Billroth used to say that the road to our successes

leads over mountains of corpses. If laymen would divert their attention to charlatans, who, as has been shown by some recent occurrences, borrow from the medical arsenal and give mercury and other strong drugs in enormous, toxic doses, the world would be benefited, while these attacks on the regular profession tend to impair the confidence of the public in trained physicians and thus they fall an easy prey to ignorant, unscrupulous quacks.

Alterations of the Skin in Lymphatic Leucemia.—Histologic study of three cases at Neisser's clinic showed enormous deposits of lymphocytes in the interstices of the corium and subcutaneous tissue, sharply defined from the subpapillary vessels, with little mitosis, but with the lymph vessels filled with lymphocytes as in functioning lymph glands, while a lack of proliferation was evident in the lymph glands. Pinkus concludes that these accumulations of lymphocytes are not due to proliferation alone, but rather to a diminished consumption of lymphocytes. In his illustrated report in the *Arch. f. Derm.* (L, 1), he asserts that an emigration of the lymphocytes from the vessels is improbable, and that it is much more likely that the accumulation of cells is due to cell-division on the spot. In lymphatic leucemia a considerable portion of the lymphatic tissue throughout the body may proliferate and produce large tumors at certain predisposed points. The qualitative and not the quantitative alterations in the blood decide the diagnosis. He distinguishes four varieties: 1. True (smooth) leucemia tumors of the skin, never found except with lymphatic leucemia, and histologically identical with the alterations in the internal organs in this disease. 2. Kaposi's lymphodermia perniciosa. 3. Sarcoma and leucemia have frequently been observed associated, and in "round-celled tumors," leucemic depositum, lymphosarcoma of mycosis fungoides are differentiated by clinical appearance. 4. It is difficult to determine the connection between mycosis fungoides and leucemia. The affection known by this name in Germany has scarcely anything to do with leucemia, but in France a protracted, diffuse erythrodermia with violent pruritus, has been noted, always connected with lymphomatosis and finally leading to the development of tumors if the patient survives to this terminal stage. Pinkus is inclined to classify this with lymphodermia perniciosa, and identify it closely with leucemia, noting its characteristics as: 1, erythrodermia; 2, diffuse thickening of the skin, mostly in the face and leontiasic, occasionally actual tumor-formation, and 3, lymphocytemia coexisting or not appearing until the cutaneous phenomena have long existed.

EXAMINATION QUESTIONS.

The following questions were presented at a recent examination of candidates for license to practice medicine in Illinois:

ANATOMY.

1. Name and locate the muscles of the eyeball. 2. Locate and describe the ileocecal valve. 3. Give the origin and distribution of the median nerve. 4. Name the membranes of the brain and spinal column. 5. Describe the heart. 6. Give origin and insertion of the gastrocnemius muscle. 7. Describe the alimentary canal from the duodenum down. 8. Describe the arch of the aorta. 9. Name the articulations of the malar bone. 10. Describe the anterior tibial artery.

BACTERIOLOGY AND PATHOLOGY.

1. How would you determine the presence of the tubercle bacilli in a specimen of sputum? 2. Give the characteristics of the bacillus tetani. 3. What are supposed to be elements of resistance or protective forces possessed by the human body against parasitic infections and intoxications? 4. Give the characteristics of the malarial organism. 5. Name the six pus cocci. 6. What is the pathology of chronic endocarditis? 7. What is the histologic structure of sarcomata? 8. What is the pathology of locomotor ataxia? 9. What are the blood changes in anemia? 10. What is thrombosis? What is embolism?

CHEMISTRY.

1. What is analysis? 2. Define simple or elementary and compound matter. 3. What is the principal atom having linking function? 4. What two kinds of molecules can be chemically distinguished? 5. How are multiples of atoms expressed in chemical notation? Example. 6. What is a base? 7. What is the difference between an atom and a molecule? 8. When are traces of albumin indicative of renal lesion? 9. What is the function of hemoglobin? 10. Give Haines' test for sugar in urine.

GYNECOLOGY.

1. Describe the minute structures of the endometrium. 2. Give the nerve and blood-supply of the ovaries. 3. What are the causes of sterility? 4. How would you give a vaginal douche? 5. What is the treatment for acute pelvic peritonitis? 6. How would you diagnosticate a small subperitoneal fibroid of the uterus from a salpingitis? 7. Give the successive steps in the operation for curettage of the uterus. 8. What are the causes of dysmenorrhea? 9. What disease of the uterus may result from childbirth? 10. What is the treatment for carcinoma of the uterus?

HYGIENE.

1. Wells, cisterns, lakes and rivers are the usual sources of drinking water. In your judgment, from which of these sources is the water more desirable and why? 2. Name some of the sources of contamination of lake and river water. 3. Some of the sources of contamination of well and cistern water. 4. Give a concise statement of the means to which you would resort to prevent contamination of drinking water in the several ways mentioned. 5. Mention some of the more usual constituents that render drinking water unfit for use. 6. What bacilli usually found in water show evidence of fecal contamination? 6. What physical properties may drinking water present to the senses and yet be non-potable? 8. Give as full a list as you can of diseases traceable to water contamination. 9. Why are cases of typhoid fever rare in a new country, and why common in an old settled country? 10. In contrast to typhoid fever, why is malarial fever common in newly settled countries and relatively rare in old?

MATERIA AND THERAPEUTICS.

1. Name four of the most important cardiac tonics and describe their physiologic action. 2. State the difference between a cholagogue and hepatic stimulant, also name examples of each. 3. Give the dose of fluid extract of ergot and describe its therapeutic action. 4. Name the alkaloids of nux vomica. 5. Describe the therapeutic and physiologic action of gelsemium and give the dose of the tincture. 6. What is Credé's ointment, and in what cases would you recommend its use? 7. Describe the action and use of bromoform, and give the dose for a child 2 years old. 8. What drugs contraindicate the use of oils and fats in case of poisoning? 9. What would you do in a case of poisoning with Paris-green? 10. Write a prescription for a child suffering from membranous croup and outline the general treatment.

MEDICAL JURISPRUDENCE.

1. As regards cause, the subject of abortion has been divided into natural, artificial and criminal. A woman has aborted under somewhat suspicious circumstances. Name some facts that would induce you to think the abortion belonged to the class natural. 2. Some that would indicate the class artificial. 3. Some that would cause you to suspect criminal intent. 4. Name some conditions that would justify the bringing on of artificial abortion, what authority should be secured? 6. In case of death following criminal abortion how would you go about establishing the fact? That is, what proofs would you expect to find? 7. An infant, evidently of recent birth, is found dead. A woman is produced who is said to be its mother. In case of an examination what proof would you expect to find in the alleged mother's condition? 8. And in the event the mother had meantime died, what further proofs of maternity upon post-mortem would you expect to find? 9. To satisfy a legal inquiry it is sometimes necessary to ascertain whether a woman has borne children at a more or less remote period. How could this fact be proven? 10. How soon can one pregnancy follow another? And what is the shortest time on record between two conceptions?

OBSTETRICS.

1. What are the blood changes in pregnancy? 2. What is the treatment of varicose veins in pregnancy? Which vein is always first affected? 3. What are the varieties of uterine contractions? 4. What is the danger if the external and internal os uteri contract without the uterus contracting itself? 5. How would you assist in delivering the head, pelvic presentation? 6. What is "hour-glass" contraction of the uterus? How would you treat such a case? 7. What is retroversion of the uterus? What are the effects of retroversion and what is the treatment? 8. What would you do if the head was arrested in the inferior strait, pelvic presentation? 9. How would you diagnose a case of shoulder presentation? How would you treat such a case? 10. What is placenta previa? Give treatment.

PHYSIOLOGY.

1. From what layer or layers of the blastoderm is the liver developed? 2. What nerves control the action of the heart? 3. Give the minute anatomy of the large intestine. 4. Describe the colored and colorless blood-corpuscles: *a*. As to proportion. *b*. As to size and composition. *c*. As to function. 5. Describe the respiratory changes in the blood and tissues. 6. Describe the nervous apparatus of respiration. 7. Give summary of the digestive changes in the large intestine. 8. Describe the two kinds of supporting material for the medullated nerve-fibers of the white matter of the spinal cord. 9. Name the different columns and tracts of the spinal cord and which are of ascending and descending degeneration. 10. Give in full, the distribution of the gray matter in both brain and cord.

PRACTICE.

1. Name the diseases with which uremia may be confounded and give diagnosis and treatment. 2. Give causes, symptoms and treatment of acute neuritis. 3. Etiology, pathology and physical signs of eccentric hypertrophy of the heart. 4. Give the differential diagnosis between serofibrinous pleurisy, lobar pneumonia and phthisical consolidation of the lung. 6. Chronic dilation of the stomach, its causes, physical signs, symptoms and treatment. 7. How would you diagnose a case of bubonic plague? 8. Give the differential diagnosis between variola and varicella and outline the general treatment of the former. 9. The causes, symptoms, complications and differential diagnosis of scarlatina. 10. Write what you know of cirrhosis of the liver.

SURGERY.

1. What is hydrocele? Give treatment. 2. What are the main treatments of fractures? 3. What is adhesion and what is effusion? 4. What are aneurysms? How do you treat them? 5. What are the indications for ovariotomy? 6. How do you treat lateral curvature of the spine? 7. Enumerate the different classes of fractures. 8. What is Pott's disease? Give treatment. 9. What symptoms characterize joint wounds? Outline your treatment. 10. Describe amputation of the knee-joint, lateral flap operation.

NEW PATENTS.

Patents granted of interest to physicians, May 1-8.

649,035. Apparatus for making extracts. Frederic A. Anderson, London, England.

649,284. Making meat extracts. Henry J. Dunn, London, England.

649,237. Fracture apparatus, Charles F. Dyson, Hiram, Ohio.

649,202. Apparatus for making barium oxid, Walther Feld, Lintz-on-the-Rhine, Germany.
649,305. Medicinal compound and making same, Ludwig O. Helmers, Hamburg, Germany.
649,062. Disinfecting device, Louis and M. H. Levett, New York City.
32,637. Design, Syringe, Samuel C. Stearns, Detroit, Mich.
649,718. Surgical splint, Lorenz A. Deuther, Buffalo, N. Y.
649,826. Medicated hat-pad, Byron A. Eldred, Boston, Mass.
649,692. Vesicant, Heinrich Helbing, London, England.
649,521. Medicated vapor injector, Hosea W. Libbey, Boston, Mass.
649,646. Umbilical truss, David S. Plum, El Dorado, Cal.
649,493. Surgical instrument, Frederick A. Stohlmann and L. G. Pfarre, New York City.
32,665. Design, massage instrument, Daniel B. Stevens, Toronto, Ont.

Queries and Minor Notes.

PRACTICE IN MEXICO.

CHICAGO, May 20, 1900.

To the Editor:—Will you kindly inform me as to the requirements for the practice of medicine in Mexico, and oblige, B. R.

ANSWER.—A foreigner, in order to be allowed to practice in Mexico with full legal privileges—signing birth and death certificates, etc.—must pass the full examination that is required of a Mexican graduate; this examination, in the foreigner's case, is likely to be rigid, and is in the Spanish language. A full account of the requirements was given in THE JOURNAL of Dec. 23, 1899.

The Public Service.

ARMY CHANGES.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., May 11 to 17, 1900, inclusive:

Charles Bruning, acting asst.-surgeon, previous orders directing him to proceed from New Orleans, La., to Tampa, Fla., and thence to Havana, Cuba, revoked.

NAVY CHANGES.

Changes in the Medical Corps of the U. S. Navy for the week ending May 19, 1900.

Asst.-Surgeon J. C. Thompson, detached from the *Bennington* and ordered to naval hospital, Mare Island, Cal., for treatment.

Asst.-Surgeon E. O. Huntington, detached from the *Newark* and ordered to the *Bennington*.

MARINE-HOSPITAL CHANGES.

Official list of the changes of station and duties of commissioned an non-commissioned officers of the U. S Marine-Hospital Service for the seven days ending May 10, 1900.

Surgeon Preston H. Bailhache, granted leave of absence for 10 days from May 25.

Asst.-Surgeon J. O. Cobb, directed to rejoin station at Fort Stanton, N. M., visiting Liberty and Saranac Lake, N. Y., and Rutland, Mass., en route.

Asst.-Surgeon John W. Kerr, relieved from duty at San Francisco quarantine and directed to proceed to Hongkong, China, for duty.

Asst.-Surgeon C. W. Vogel, relieved from duty at Immigration Depot, New York City, and directed to proceed to San Francisco quarantine, Cal., and report to the medical officer in command for duty and assignment to quarters.

Asst.-Surgeon J. W. Amesse, relieved from duty at Detroit, Mich., and directed to proceed to Honolulu, H. I., and report to Surgeon D. A. Carmichael for duty.

Asst.-Surgeon A. J. McLaughlin, relieved from duty at Stapleton, N. Y., and directed to report to the medical officer in command, Immigration Depot, for duty.

Asst.-Surgeon B. H. Earle, relieved from duty at Chicago, and directed to proceed to Detroit, Mich., and report to the medical officer in command for duty and assignment to quarters.

Asst.-Surgeon B. J. Lloyd, relieved from duty at Mobile, Ala., and directed to proceed to Chicago, Ill., and report to the medical officer in command for duty and assignment to quarters.

Asst.-Surgeon John D. Long, relieved from duty at Boston, Mass., and directed to proceed to Stapleton, N. Y., and report to the medical officer in command for duty and assignment to quarters.

Acting Asst.-Surgeon E. E. Field, granted extension of leave of absence for two days.

Hospital Steward Charles W. Stephenson, relieved from duty at Chicago and directed to proceed to Evansville, Ind., and report to the medical officer in command for duty and assignment to quarters.

HEALTH REPORTS.

The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended May 19, 1900.

SMALLPOX—UNITED STATES

Alabama: Mobile, May 5-12, 2 cases.
Indiana: Evansville, May 5-12, 2 cases.
Kansas: Wichita, May 5-12, 4 cases.
Kentucky: Covington, May 5-12, 2 cases.
Louisiana: New Orleans, May 5-12, 57 cases, 14 deaths.
Maine: Portland, May 5-12, 1 case, 1 death.
Massachusetts: Chicopee, May 5-12, 1 death.
Michigan: Detroit, May 5-12, 2 cases.
Nebraska: Omaha, May 5-12, 6 cases.
Ohio: Cleveland, May 5-12, 19 cases, 1 death.
Pennsylvania: Pittsburg, May 5-12, 2 cases.
South Carolina: Greenville, May 5-12, 3 cases.
Utah: Salt Lake City, May 5-12, 2 cases.
Washington: Tacoma, April 28 to May 5, 1 case.
Wyoming: Sweetwater Co., May 4, 6 cases; Uintah Co., May 4, 4 cases.

SMALLPOX—FOREIGN.

Austria: Prague, April 22-28, 16 cases.
Belgium: Antwerp, April 22-28, 1 case, 1 death.
Canada: Manitoba, Winnipeg, April 1 to May 12, 11 cases 1 death; Quebec, Bonaventure Co., May 4-11, 5 cases.
China: Hongkong, March 22 to April 7, 6 cases, 3 deaths.
England: Liverpool, April 22-28, 9 cases, 3 deaths; London, April 22-28, 6 cases, 1 death; Southampton, April 28 to May 5, 5 cases.
France: Lyons, April 14-21, 2 deaths.
Gibraltar: April 22-28, 8 cases, 2 deaths.
Greece, Athens, April 22-28, 8 cases, 2 deaths.
India: Bombay, April 10-17, 72 deaths; Calcutta, March 25, 39 deaths; Kurrachee, April 8-15, 12 cases, 9 deaths.
Italy: Rome, March 22 to April 7, 2 deaths; Venice, April 14-21, 1 death.
Japan: Formosa, Tamsui, March 24-31, 134 cases, 2 deaths.
Mexico: Chihuahua, April 28 to May 5, 1 death; Mexico, April 1-29, 57 cases, 42 deaths; Vera Cruz, April 28 to May 5, 8 deaths.
Spain: Corunna, April 22-28, 1 death.
Russia: Moscow, April 7-21, 5 deaths; Odessa, April 22-28, 7 cases, 2 deaths; St. Petersburg, April 14-21, 31 cases, 9 deaths; Warsaw, April 14-21, 2 deaths.
Scotland: Glasgow, April 22-28, 19 cases, 2 deaths.
Spain: Valencia, April 22-28, 1 case.

YELLOW FEVER.

Cuba: Havana, May 7, 1 case.
Mexico: Vera Cruz, April 28 to May 5, 10 deaths.

CHOLERA.

Arabia: Oman, March 10, present.
India: Bombay, April 10-17, 26 deaths; Calcutta, March 18-24, 101 deaths.

PLAGUE.

Egypt: Alexandria, May 9, reported.
India: Bombay, April 10-17, 533 deaths; Calcutta, March 18-24, 878 deaths; Kurrachee, April 8-15, 480 cases, 402 deaths.
Japan: Formosa, Tamsui, March 24-31, 106 cases, 74 deaths; Osaka, April 13, 1 death.
New Caledonia, Numea, Dec. 17 to April 4, 123 cases, 77 deaths.

CHANGE OF ADDRESS.

Dr. C. T. Allen, from Shiloh to Tobaccoport, Tenn.
Dr. L. P. H. Bahrenburg, from Pemberville, Ohio, to 19th Ave. and 83d St., Bath Beach, Brooklyn, N. Y.
Dr. S. B. Bennett, from Fair View to Galesburg, Ill.
Dr. G. F. Butler, from Chicago, Ill., to Alma, Mich.
Dr. C. M. Braidwood, from Detroit to Lapeer, Mich.
Dr. A. Cornelius, from 589 Van Buren to 525 S. Robey St., Chicago.
Dr. H. Cook, from 155 Adams St. E., Detroit to Pewamo, Mich.
Dr. O. N. Carter, from Sandidges, Va., to Lebanon, Mo.
Dr. H. F. Connally, from McGregor to Bruceville, Texas.
Dr. P. T. Conlan, from Omaha to Columbus, Neb.
Dr. M. H. Coan, from Wyandotte to Leslie, Mich.
Dr. W. R. Cothern, from 354 S. Hoyne St., Chicago to Melvin, Illinois.
Dr. H. C. Castor, from 340 to 184 N. State St, Chicago.
Dr. S. T. Carswell, from Homerville to Fowlstown, Ga.
Dr. J. H. Dyer, from Shelbyville to Wartrace, Tenn.
Dr. W. E. Duncan, from 603 W. 63d St., to 6058 Kimbark Ave., Chicago.
Dr. D. W. Detwiler, from 2099 Harvard St., to 1800 Wabash Ave., Chicago.
Dr. W. E. Frank, from Trivoli to Itasca, Ill.
Dr. J. F. Fox, from Redland to Muldrow, I. T.
Dr. J. K. Frankish, from Philadelphia to Gwynedd, Pa.
Dr. O. A. Fliesburg, from 102 Washington Ave., South to 1312 7th St., South, Minneapolis, Minn.
Dr. A. F. Griggs, from Atlanta, Ga., to 2027 3d Ave., Birmingham, Ala.
Dr. E. Gleitsman, from 654 N. Hoyne Ave., to 710 Fullarton Ave., Chicago.
Dr. W. A. Hibbs, from Delphos, Kans., to Lead, S. D.
Dr. D. W. Jones, from Port Gibson to Hermanville, Miss.
Dr. F. G. Johnson, from Brooklyn to Paoli, Wis.
Dr. T. W. Little, from Long Grove to Morley, Iowa.
Dr. B. F. Long, from Baltimore, Md., to McCoysville, Pa.
Dr. V. F. Lassagne, from Chicago to Eureka Springs, Ark.
Dr. J. Pedden, from Detroit to Petoskey, Mich.
Dr. W. M. Phelps, from 529 Van Buren to 120 De Kalb St., Chicago.
Dr. A. B. Perkey, from Presbyterian Hospital to 393 S. Leavitt St., Chicago.
Dr. W. C. Ramsey, from Everett Block, Akron to Hopedale, Ohio.
Dr. G. P. Ramsey, from Crawfordsville to Newtown, Ind.
Dr. W. A. Scott, from Thomasville, Ala., to Swanton, Ohio.
Dr. W. T. Seymour, from Polo, Ill., to Reedsburg, Wis.
Dr. I. J. Spear, from 2338 Eutaw St., to Bay View Asylum, Insane Department, Baltimore, Md.
Dr. Le Roy Southmayd, from Virginia City to Great Falls, Mont.
Dr. F. E. Stewart, Care Merck & Co., from New York City to 67 Prospect St., East Orange, N. J.
Dr. E. B. Schrock, from Ostrander to Yellow Springs, Ohio.
Dr. H. C. Snitcher, from Colorado Springs to Denver, Colo.
Dr. J. A. Tyler, from 229 N. Champlon to 221 N. 6th St., Columbus, Ohio.
Dr. C. A. Thixton, from 1617 to 1707 Preston St., Louisville, Kentucky.
Dr. N. A. Upchurch, from Monlac, Ga., to Summerfield, Fla.
Dr. W. C. Wessell, from Barksville, Ill., to Warrenton, Mo.
Dr. O. J. Westlake, from City Hospital to 408 E. 12th St., Kansas City, Mo.
Dr. J. F. Wilson, from 144 65th St. to 6424 Sangamon St., Chicago.

Current Medical Literature.

Titles marked with an asterisk (*) are noted below.

Philadelphia Medical Journal, May 12.

1.—*Scarlatina Miliaris. J. P. Crozer Griffith.
2.—*Pruritus Ani, with Especial Reference to its Local Treatment. Lewis H. Adler, Jr.
3.—*Relation of Diseases of the Nose and Throat to Life-Expectancy. E. Fletcher Ingals.
4.— Alarming Hemorrhage Controlled by Hemostatic Forceps Left on the Vessel; Wound of Femoral Vein Controlled by Means of Hemostatic Forceps; Gangrenous Omental Hernia with Practically no Constitutional Symptoms; Amputation of all Toes of Both Feet for Dry Gangrene; Removal of 280 Grains of White Wax from Male Urinary Bladder. Orville Horwitz.
5.— Remarks to the General Practitioner Regarding the Pessary. Frank C. Hammond.
6.—*Intestinal Indigestion and its Consequences. (*Continued.*) William H. Porter.

Cincinnati Lancet-Clinic, May 12.

7.— Sensory Nerves of the Genitals. Byron Robinson.
8.— The New Medical Law, etc. N. P. Dandridge.
9.—*Treatment of Internal Hemorrhoids. George J. Monroe.

New York Medical Journal, May 12.

10.—*Study of Application of Galvano-Cautery in Nose. Beaman Douglass.
11.— Kyphotone, or Modified Plaster-jacket Stool for the Correction of Humpback. R. Tunstall Taylor.
12.—*General Remarks on Pathology and Treatment of Stricture of Urethra. Charles Greene Cumston.
13.—*Technique of Lumbar Puncture. Lewis A. Conner.
14.—*Treatment of Hay Fever by Suprarenal Gland. Beaman Douglass.
15.— Another Case of Typhoid Infection without Intestinal Lesions, with Positive Widal Reaction. W. Ophuls.
16.— Cystitis. Henry H. Morton.

Medical Record (N. Y.), May 12.

17.—*Bottini's Operation for Cure of Prostatic Hypertrophy. Report of Cases. Willy Meyer.
18.—*Modern Treatment of Diabetes Mellitus. Frederick Kraus, Jr.

Medical News (N. Y.), May 12.

19.—*Functional and Organic Heart Murmurs in Infancy and Childhood. Abraham Jacobi.
20.— Perforating Duodenal Ulcers. (*Concluded.*) Robert F. Weir.
21.— Metal Roller Water Tank for Application of Heat or Cold (Counterirritation). Robert Coleman Kemp.

Boston Medical and Surgical Journal, May 10.

22.—*Adaptation of Pathogenic Bacteria to Different Species of Animals. Theobald Smith.
23.—*Bacteriotherapeutics, with Especial Reference to Tuberculosis. Edward R. Baldwin.
24.—*Relation of Bacteriology to Medicine. Richard C. Cabot.
25.—*Ideal Ration for Army in Tropics. (*Continued.*) Edward L. Munson.

Medical Review (St. Louis, Mo.), May 12.

26.—*Use and Abuse of Phosphorus. L. Harrison Mettler.
27.—*Treatment of Influenza. W. L. Johnson.
28.— Difficult Case of Narcosis. George C. Crandall.

American Practitioner and News (Louisville, Ky.), March 15.

29.—*Etiology of Acute Diffuse Pneumonia. William N. Beggs.

American Practitioner and News (Louisville, Ky.), April 1.

30.— Surgical Treatment of Suppurative Pericarditis. John A. Onchterlony.
31.— "Two Terrible Examples." Giffard Knox.
32.— Valedictory Address at University of Louisville. Ezekiel Merrill Bartlett.

Virginia Medical Semi-Monthly (Richmond), April 13.

33.— The Negro. His Environments as a Slave; His Environments as a Freedman. John Herbert Claiborne.
34.— Report of Two Cases. 1, A Miscarriage; 2, A Retro-Displaced Pregnant Uterus. Walker B. Gossett.
35.—*Clinical Aspects of Infantile Diarrhea. J. W. P. Smithwick.
36.— Medicinal and Surgical Treatment of Abscesses, with Clinical Histories. Eugene C. Underwood.
37.— Phenocoll Hydrochlorid in Malaria. L. H. Warner.
38.— Clinical Microscopy in Diseases of Respiratory Organs. H. Stuart MacLean.
39.— Difference in Cause, Symptoms, Results and Treatment of Grip and Cold. Wm. S. Gordon.

Railway Surgeon (Chicago), April 17.

40.— Diseases of Lungs the Result of Trauma. D. S. Fairchild.
41.— Don't be in a Hurry to Amputate. J. R. Hollowbush.
42.— Minor Casualty Surgery; Ideals of Treatment and Results. H. L. Getz.
43.— Traumatic Popliteal Aneurysm. J. T. Dunn.

Annals of Surgery (Philadelphia), May.

44.—*Two Cases of Esophageal Diverticulum, with Remarks. Maurice H. Richardson.
45.—*Postdiphtheritic Stenosis of Larynx (Retained Intubation Instruments and Retained Tracheal Canule). John Rogers, Jr.
46.—*Contribution to Surgery of Stomach, Including Wounds, Gastrostomy, Gastroenterostomy and Gastrectomy. H. Beeckman Delatour.
47.—*Report of Case of Recovery after Ligation of First Portion of Right Subclavian Artery for Aneurysm of Third Portion. A. E. Halstead.
48.— Complete External Dislocation at Elbow. Randolph Winslow.
49.— Report of Case of Actinomycosis Hominis of Lungs. James B. Bullitt.
50.— Report of Case of Superficial Bilateral Gangrene with Asymmetrical Lesions. George F. Wilson.
51.— Dislocation at Shoulder Complicated by Fracture through the Anatomical Neck of the Humerus. Charles Brooks Brigham.

Journal of Cutaneous and Genito-Urinary Diseases (N. Y.), May.

52.—*Report of Ten Cases of Vesical Tumors, with Some Remarks upon the Cleansing of Foul Bladders and the Technic of Suprapubic Cystotomy. Granville MacGowan.
53.—*Tuberculosis of the Skin in a Physician from Accidental Inoculation. Jay F. Schamberg.

Medicine (Detroit, Mich.), May.

54.—*Plea for More Attention to Sense Organs, Especially the Eye. J. G. Huizinga.
55.—*Significance of Albuminuria. Orville A. Kennedy.
56.—*Diagnosis of Different Forms of Malarial Fever. Albert Woldert.
57.—*Electrocautery in Nose and Throat Diseases. S. G. Dabney.
58.—*Pancreatic Digestion from Standpoint of Comparative Anatomy of the Bile and Pancreatic Ducts in Mammals. B. K. Rachford.

Medical Standard (Chicago), May.

59.— Syphilis: Phenomena and Management. William S. Gottheil.
60.— Pyonephrosis; Nephropexy; Traumatic Epiphyseal Lesions; Osteomyelitis, etc. Nicholas Senn.
61.—*Preliminary Remarks to Discussion of Tuberculosis. Charles Denison.
62.— Rötheln, or German Measles. Marcus P. Hatfield.
63.— Contused and Perforating Injuries of Eyeball, with Report of Cases. Thomas A. Woodruff.
64.— Diagnosis of Heart Diseases. Albert Abrams.
65.— Hemorrhage and Circulatory Disturbances in Complicated Fracture. Thos. H. Manley.

Annals of Otology, Rhinology and Laryngology (St. Louis, Mo.), February.

66.—*Contribution to Pathologic Histology of Hyperkeratosis Lingualis. (Hairy Tongue.) J. L. Goodale.
67.—*Cysts of External Auditory Canal; Report of Case. Lewis S. Somers.
68.—*Use of Suprarenal Extract in Diseases of Nose and Throat. W. H. Bates.
69.— New Instruments for Correction of Irregularities of Nasal Septum. Henry W. Wandless.
70.— Some Improved Nose, Throat and Ear Instruments. Edwin Pynchon.
71.— Osteoma of Auditory Canal. Thomas R. Pooley.

Indiana Medical Journal (Indianapolis), April.

72.— Several Unusual Cases of Skin Disease Observed in Indianapolis. A. W. Brayton.
73.— Osteosarcoma of Thigh and Lung; Cystic Tumor; Destruction of Speech Center. John E. Harris.

Brooklyn Medical Journal, May.

74.— Dispensary Experiences. F. S. Kennedy.
75.—*Some Points in Chemistry of Cow's Milk, with Reference to Infant Feeding; with Description of Method for Home Modification of Cow's Milk. E. H. Bartley.
76.—*Consideration of Radical Treatment of Hemorrhoids. Wm. F. Campbell.
77.—*Alcoholism and its Treatment. L. J. Morton.

Obstetrics (N. Y.), April.

78.— External Cephalometry Applied to Artificially Induced Labor. M. Perret.
79.— Albuminuria of Pregnancy. Samuel G. Dabney.

Western Medical Review (Lincoln, Neb.), May 5.

80.—*Hot Bath as Aid in Abdominal Diagnosis. George Dock.
81.—*Intraligamentous Growths. Thomas H. Hawkins.
82.— Clinic at Jefferson Medical College Hospital. H. A. Hare.
83.— New Method of Suturing Internal Ring in Operations for Inguinal Hernia. Leonard Freeman.
84.— Application of Our New Law. J. G. Johnston.
85.—*Longitudinal Wire Suture in Radical Operation for Hernia. M. L. Harris.
86.— Report of Some Cases in my Practice. M. A. Hughes.
87.— Abortion. (*Concluded.*) A. D. Wilkinson.

St. Louis Clinique, May.

88.— Faculty's Valedictory. St. Louis College of Physicians and Surgeons. George H. Thompson.
89.— Some Newer Therapeutic Agents. (*Continued.*) C. W. Lillie.
90.— Treatment of Ulcers. H. C. Allen.

Kansas City Medical Index-Lancet, May.

91.— Annual Address before the Western Surgical and Gynecological Association at Des Moines, Ia., Dec. 28, 1899. H. C. Crowell.
92.— Diphtheria and Membranous Croup. J. W. Lane.
93.— Quinalgen (Analgen.) A. M. Wilson.
94.— X-Ray as an Aid in Diagnosis of Tuberculosis of Lung. J. N. Scott.
95.—*Remarks on Chorea, its Pathology and Treatment. John Punton.

Kansas City Medical Record, April.

96.— Treatment of Female Pelvic Diseases in Country Practice. E. N. Miller.

Colorado Medical Journal, April.

97.—*Pulmonary Complications of Typhoid Fever. Carroll E. Edson.
98.—*Is Change of Climate a Necessity for Successful Treatment? Charles Denison.

99.—*Causes and Treatment of Acute Coryza. Melville Black.
100.— Prevention of Diseases of Eye During Childhood. E. W. Stevens.
101.— Dame Nature's Vaginal Hysterectomy. Calvin Skinner.

Louisville Monthly Journal of Medicine and Surgery, May.

102.— Tubercular Peritonitis. James B. Bullitt.
103.— Talipes Equino-Varus. Irwin Abell.
104.— Observations on Lithemia. (*Continued.*) Arch. Dixon, Jr.
105.— Report of Surgery. (*Continued.*) H. Horace Grant.
106.— Systematic Anesthesia of Chloroform and Ether: Practical Points from Personal Experience of 2300 Cases. James W. Guest.

Woman's Medical Journal (Toledo, Ohio), April.

107.—*The Therapeutic Uses of Yeast. Elsie Reed Mitchell.
108.— Aphasia. Jennie Lyon.
109.— Short Umbilical Cord: Report of Cases. Helen Post Wilson.
110.— Femoral Hernia with Report of Two Cases. J. Lillian McBride.

Medical Summary (Philadelphia), May.

111.— Symptoms of Hysteria. Arthur E. Strong.
112.— Let the Druggist Prescribe. J. W. Lockhart.
113.— Treatment of Catarrhal Pneumonia in Children. Eugene C. Underwood.
114.— Sanitary and Hygienic Sermon for the Country Doctor. A. T. Cuzner.
115 — Syphilis. (*Continued.*) Wm. V. Wilson.
116.— Cerebrospinal Meningitis. Drs. Pennebaker and Tripp.
117.— Symptomatology and Treatment of Septicemia. J. W. P. Smithwick.
118.— Remonstrance. Reminiscence and Remarks. Geo. H. Candler.

St. Louis Courier of Medicine, April.

119.—*Post-febrile Insanities, Relating Particularly to La Grippe and Typhoid Fever. J. K. Baudry.
120.—*The So-Called Fetal Theory of the Cause of Eclampsia. P. C. T. Von Der Hoeven.
121.—*Preliminary Report on Etiology of Scarlatina. R. B. H. Gradwohl.

Iowa Medical Journal (Fort Dodge), April.

122.— Gastro-Intestinal Disorders of Children. W. S. Lessenger.

Buffalo Medical Journal, May.

123.—*Rational Steps in Treatment of Nervous Prostration, Headache and Neuralgia. (*Concluded.*) Ambrose L. Ranney.
124.—*The Missile and the Weapon. A. L. Hall.
125.— Unusual Conditions of Skin and Kidneys Following an Operation for Appendicitis. W. G. Taylor.
126.— On a Form of the Haab Magnet. Lucien Howe.
127.— Chronic Suppuration of Middle Ear and Chronic Empyema of Nasal Accessory Sinuses. Frank Whitehall Hinkel.

Medical Dial (Minneapolis, Minn.), May.

128.— Three Interesting Patients for a Recent Graduate. H. Bowman.
129.— The Trained Nurse. Christine Williams.

St. Paul Medical Journal, May.

130.—*Practical Method of Estimating Directly the Quantity of Hemoglobin. T. W. Tallquist.
131.— Bacteriological Diagnosis of Diphtheria in Minnesota. F. F. Wesbrook.
132.—*Pernicious Anemia, with Report of Case. Charles R. Ball.
133.—*Observations on 1092 Cases of Anesthesia from Jan. 1898, to Jan. 1, 1900. Alice Magaw.
134.— Tubercular Epididymitis with Report of Case. Marcus Tessler.
135.— Foreign Body Left in Abdominal Cavity During Celiotomy; Fecal Fistula; Recovery. S. S. Hesselgrave.
136.— Pulmonary Tuberculosis, with Gangrene of Leg. Henry Jackson.

Peoria Medical Journal, April.

137.— Influenza and Complications. H. H. Whitten.
138.— Herpes Zoster Frontalis. R. E. Lewis.

Medical Register (Richmond, Va.), April.

139.— Present Status of Insanity in Virginia. Wm. Francis Drewry.
140.— Grip Lung. John L. Dawson.
141.— Comparative Study of Nerve. Charles M. Hazen.
142.— Use and Abuse of Blisters. Wm. P. Mathews.
143.— Injuries to Skull, with Report of Some Recent Cases. Lewis C. Bosher.
144.— Tuberculosis of Bone. A. B. Greiner.

Medical Sentinel (Portland, Ore.), April.

145.— Gall-Stone Fragments. Kenneth A. J. Mackenzie.
146.— Epidemic in Eastern Oregon. Olive Hartley.
147.— Quarantine. Titus C. Briggs.
148.—*New Method of Relief for Facial Neuralgia. W. C. Belt.

Southern Medical Journal (La Grange, N. C.), April.

149.— Incompatibility. E. A. Ruddiman.
150.— Report of Some Interesting Cases with Remarks Thereon. J. W. P. Smithwick.
151.—*Clinical Aspect of Infantile Diarrhea. J. W. P. Smithwick.

Medical and Surgical Bulletin (Nashville, Tenn.), April.

152.— Hodgkin's Disease, with Report of Case. E. G. Wood.
153.— Valedictory. Professional Life of Dr. Marion Sims. J. R. Fleming.

Medical Fortnightly (St. Louis, Mo.), May 10.

154.— Medical Laws and Medical Organization in Illinois. W. T. Moffett.
155.— Efficiency of Our Health Laws. S. T. Hurst.
156.— Treatment of Incipient Phthisis, with Clinical Reports. Robert C. Kenner.
157.— Cancer of Rectum in Female, with Report of Case. Wallace K. Oakes.
158.— Abortion, its Cause and Treatment. C. W. Price.
159.— Observations on Obstetrics. J. B. O'Neil.
160.— Care of Eyes of New-Born. J. F. Hill.
161.— Climatic Treatment of Tuberculosis. George M. Randall.

Annals of Gynecology and Pediatry (Boston), April.

162.— Operative Indications in Cases of Fibroma Complicated by Pregnancy. D. Delageniere.
163.— Two Cases of Sporadic Cretinism. John Lovett Morse.

Dominion Medical Monthly (Toronto, Can.), April

164.— Case of Smallpox Recently Discharged from Isolation Hospital in this City. J. G. Lamont.

Hot Springs Medical Journal (Ark.), April.

165.— Value of Prostatic Examination. J. Leland Boogher.
166.— Treatment of Pulmonary Tuberculosis by Inhalation of Antiseptic Nebulæ. Homer Thomas.

AMERICAN.

1. **Scarlatinal Miliaria.**—After noticing this peculiar eruption in scarlatina and reporting cases, Griffith suggests that the often expressed view that miliaria is an indication of severity in scarlatina may not be tenable, as there seems to be no connection between the two. Apparently different causes act to produce the efflorescence and the vesiculation and, contrary to the opinion of certain writers, there seems to be no necessary relation between the amount of scarlatinal peeling and the degree of miliarial eruption. He favors the view of Thompson, that the development of miliaria in scarlatina depends largely on some peculiarity of the skin rather than on any intensity of the scarlatinal rash or other factor, and the observation of Henoch, as to a family tendency to miliaria in scarlatina seems to support this view. It is possible to have embarrassment of diagnosis from miliarial eruption in scarlatina, and in one of his cases the presence of other instances of the disorder was the leading factor deciding the diagnosis.

2.—See abstract of this article in our Therapeutics Department of this week.

3. **Nose and Throat Diseases in Life Insurance.**—Ingals concludes, from a study of the facts, that examinations of the nose and throat will not usually aid the life insurance examiner, but that in a limited number of cases it may cause him to reject persons otherwise acceptable, who are likely to develop diseases within a short time that will greatly reduce their expectancy of life. Hence such examination should be made whenever the personal or hereditary history and the general appearance or quick pulse leads the examiner to suspect the beginning of pulmonary or cardiac disease.

6. **Intestinal Indigestion.**—Porter describes the physiology of intestinal digestion, and, in concluding says that for the most perfect working of the alimentary canal, the system must daily produce a laxative mixture composed of bile, glycerin and soap, and when it fails to do so the common symptoms of constipation appear. This is a point to be kept in mind in the management of every case of intestinal indigestion, if the best results are to be secured.

9. **Internal Hemorrhoids.**—Monroe claims that the hypodermic injection method, although it has received its share of condemnation, is a good one, that will cure in certain cases and when properly used is perfectly safe. He discredits the deaths reported by Andrews and says that he has found him to be mistaken in some instances. For small hemorrhoids, especially in the perineal form, found so often in females, he believes there is no better treatment; and it can also be used successfully in all tumors that are above the sphincter muscle. He uses 1 dram of a saturated solution of Calvert's carbolic acid, and 3 drams of olive-oil mixed by placing the bottle in warm water, injecting from 5 to 10 drops into each tumor. He admits that there may be accidents, such as abscess or fistula but thinks that talk of heart-clot is nonsense. The preparation of the patient for this method of treatment is the same as for any other; and a weaker solution than the one given should not be used. If the sloughing is extensive or abscess or other troubles follow, they should be treated as though coming from any other cause.

10. **Galvanocautery in the Nose.**—Douglass has studied, microscopically, the effect of the galvanocautery in the nose, in order to determine the reason why this method has fallen

into disfavor, and he finds that the action of the cautery tends to form a cone of burned tissue, deepening toward the deeper structures. If it is used superficially over wide areas there results an extensive destruction of the epithelium, including the hyaline membrane. If the cautery point is rapidly pushed deeper into the tissue, the superficial effects with wide devastation of the epithelium and hyaline membrane are not noticed, and the area of reaction is more circumscribed; hence the cautery should not be used superficially or over a large surface, but should be rapidly introduced into the deeper structures and immediately drawn forward or backward. Another practical point is that the cautery point, on being placed against the epithelial surface should either not be heated or else heated only to a moderate degree—just sufficient to allow the cautery point to pass the epithelium and hyaline membrane. After this, greater heat can be turned on and the deeper structures, vessels, glands and hypertrophic masses destroyed to the bone. The old and time-honored "linear" method of cauterizing must be forsaken, since the hyaline membrane and epithelium are injured by a less degree of heat than the deeper structures. We have by the use of the superficial method, the broad based wedge or sloughing that defeats the real purpose, which is to reduce the hypertrophic parts and leave as little disturbance as possible on the surface. This method must, therefore, be discarded, except where it is desired to produce a superficial effect. In all other cases, we must use the cautery point so as to spare these superficial tissues as much as possible. He suggests a stiff wire electrode to penetrate the external tissues at a moderate heat and to be repeatedly inserted at different points along the hypertrophy. The method would vary a little according to the locality. On the septum a single puncture should be made, and that only in a case where there is dilatation of the venous sinuses of the tuberculum septi, the only condition which he thinks would require cauterization. Necrosis of the cartilagio septi is very apt to result from its disturbance. On the anterior end of the inferior turbinate and posterior ends of both inferior and middle turbinates several punctures should be made in as nearly a circular series as possible. The posterior tip of either turbinate should be punctured from the posterior pharynx, a palate retractor being used. The part of the ethmoid known as the middle turbinate should perhaps seldom be cauterized, except at its posterior end, and sometimes at the anterior end, on account of its close relation to the ethmoidal cells, and theirs to the dura mater. Pachymeningitis or ethmoiditis is the danger to be avoided.

12. **Stricture of the Ureter.**—Cumston describes the methods of performing internal and external urethrotomy. He does not believe in the routine use of the permanent catheter in the latter operation, for he thinks that it is injurious. The only proper treatments in the case of stricture are dilatation with sounds, internal urethotomy, and, in exceptional cases, external urethrotomy. Temporary dilatation is useful in the stage of exudation or early part of the connective tissue stage, but forcible dilatation is not advised. It is also used as a preparatory treatment for internal urethrotomy, which should be employed in those cases that have a valve-like or bridge-shaped form, and where the connective tissue encircles the canal. This should be done to a limited extent only, and only after being treated unsuccessfully by dilatation. Internal urethrotomy is simply an operation intended to pave the way for future treatment by dilatation. The incision made in this way, heals rapidly, but in cases of external urethrotomy, healing takes place with interposition of cicatricial tissue between the edges of the walls of the urethra; and consequently there is an actual increase in the caliber, which can be made permanent by the subsequent passage of bougies, even if this cicatricial tissue should contract somewhat. If external urethrotomy is performed, and the central end of the urethra can not be found and there is complete retention of the urine; or if in case of traumatic stricture, the cicatricial tissue extends as far back as the neck of the bladder, there is but one method, and that is posterior catheterization. The technique of the operation is described, and caution given in regard to the antisepsis; he recommends the use of urotropin to render the genito-urinary apparatus antiseptic, and special care to be taken with instruments and applications.

13. **Lumbar Puncture.**—In locating the point of lumbar puncture, three things should be considered: 1. That there is ready entrance of the needle into the subarachnoid space. 2. That the tapping is made at the point least likely to admit of damage to the nervous structures. 3. That the fluid obtained is as rich in sediment as possible. In regard to the first requirement, it is sufficiently well met by entrance through any of the lumbar spaces or through the lumbosacral space; and injury to the cord can be avoided by entering at some point below the third lumbar vertebra. The last requirement is best fulfilled by tapping in the lumbosacral space, and when the patient is a child, he would have the puncture made while in a sitting position. The essential point is to secure the greatest possible degree of ventral flexion of the spine. General anesthesia is usually unnecessary and asepsis should be as complete as possible. In very fat or muscular patients where the bony prominences are indefinite, the most satisfactory means of locating the vertebræ is by taking a line between the highest points of the iliac crest, that regularly crosses the fourth vertebral spine, and the method of puncture is described. In children the fluid is reached at a depth of 2 to 3 cm., and in adults from 4 to 7 cm. There are rarely any accidents; sometimes the fluid does not flow when one is sure the needle is in the canal, but this may be due to its being plugged while being introduced, or to the contents being of a gelatinous character, as in a case reported by Packard. A little blood stain from injury of a small vein is unimportant. More serious accidents, when they have occurred, have generally been caused by the rapid withdrawal of a large quantity of fluid.

14. **Hay-Fever.**—Douglass recommends the use of suprarenal gland extracts, both locally and internally, for a long period of time, in the treatment of hay-fever. He thinks that it is generally best given internally in the tablet form—5 gr. of saccharated, dried suprarenal gland administered at first every two hours, day and night, until some giddiness or palpitation is observed, or until the local examination of the nasal membrane shows that the remedy is controlling the vasomotor paralysis. After this has been done it may be given at longer intervals—probably every three hours, then every six, then twice daily, continuing in this way through the hay-fever season. If the symptoms reappear, the quantity may be again increased until they are again controlled. When used locally, it should be applied either by means of a spray or on pledgets of cotton saturated with a 6 to 12 per cent. solution. There is no other remedy used which is as useful as suprarenal gland, for it fulfills all the indications better than any other that has been introduced.

17. **Bottini's Operation.**—Meyer reports 12 cases in addition to those previously given, and says that 30 Bottini operations have been performed on 24 individuals, and that he finds that they show 38 per cent. cured so far, 29 per cent. much improved, 8 per cent. benefited; and a mortality of 8 per cent. directly due to operation, and 8 per cent. indirectly due to it. These cases were not selected but were operated on as they came along. One of the deaths was due to anterior incision, a method which he has since abandoned, and he thinks that in the future he can reduce the mortality.

18. **Diabetes Mellitus.**—The diet for diabetic cases is best ascertained by putting the patient on a standard one, taking besides the indefinite albuminous and fat-producing matter, a definite amount of carbohydrates—say 60 grains; then collecting a twenty-four-hours' urine, beginning after the first breakfast. The amount of sugar can be ascertained by polarization and titration, or by polarization before and after fermentation, to find out also the amount of substances which turn the plane to the left. In all mild cases and in non-diabetic glycosuria, we have no sugar, and in these after a period of four or five days, the daily allowance of carbohydrates is increased and the urine of the last day of such a period collected as heretofore; and this is continued until the presence of sugar is found in the urine, and we know the tolerance of the system for carbohydrates. In all cases where the glycosuria is found, the

amount of carbohydrates in the patient's diet is reduced and it is kept as free from them as possible, until the condition has disappeared, when they are increased again, and so on. Where it is impossible to suppress the glycosuria even by the strictest diet, a certain amount of carbohydrates is allowed, because it would be impossible to keep the patient from taking some, as they are essential to life. It is also of great value to know in each case the fluctuation of glycosuria within twenty-four hours, so that the distribution of the carbohydrate food can be thus controlled. To make a good diabetic list, one must know the percentage of carbohydrates in the various articles and how to substitute them. Kraus thinks that a moderate amount of carefully selected alcoholics can be used, but care should be taken to avoid any toxic effect. Balneotherapy is rather favored, since it has its advantages in taking the patient away from home to a place where proper care can be exercised, some of the alkaline-muriatic waters have also a good effect. In other cases, especially neurasthenics, it would be better to send the patient to the seaside or to some high, bracing altitude, where he can find sufficient accommodation to follow the diet prescribed.

19. **Functional and Organic Heart Murmurs in Infancy.**—The denial by Hochsinger and Soltmann, of the existence of functional murmurs in the first three years of life, is noticed by Jacobi, who reports a case in an infant 13 months old. He has taken care to avoid confusing it with extracardial murmurs, an error which has been committed. This is undoubtedly rare in infants under 2 years of age, but as the lungs grow and there are present tumors or adhesions between the pleura and pericardium, the murmur may appear soft or grating, and is generally heard anteriorly only. It is rhythmic, not synchronous with contraction of the heart; strong on deep inspiration; disappears when there is no breathing and is less audible in a recumbent than in an erect position. While murmurs in most cases mean organic disease, the converse is not true, and he reports a case illustrating this. Most murmurs mean organic lesions, either in the valves or in the myocardium, but in children there are conditions which occasionally make the diagnosis somewhat difficult. In persistence of the ductus arteriosus, there is a loud systolic murmur over the sternal end of the second left intercostal space, extending upward into the vessels of the neck, mainly on the left side and audible posteriorly in the left interscapular space. There is a characteristic dulness, nearly oblong, along the left margin of the sternum to the clavicle. The diagnosis is embarrassed by complications with valvular anomalies, but when not so complicated patency of the duct is compatible with a fairly long life. In congenital stenosis of the pulmonary arteries, there is a systolic murmur in the sternal part of the second left intercostal space, which is not transmitted into the carotid, unless there is a defect of the ventricular septum. There is sometimes a full feeble second pulmonary sound, with club fingers, and hypertrophy of the right ventricle, but when atresia of the artery exists these are absent, and the right heart is small or rudimentary. Jacobi has never found an absence of the ventricle unless it was complicated with stenosis of the pulmonary artery. He can not verify the statement of books that pulmonary stenosis with defect of the septum is characterized by hypertrophy of the heart; for the opposite condition is characteristic. Another class of cyanotic cases is due to arrest of development of the common arterial trunk, which did not separate into the aorta and pulmonary artery; and in these he found little or no hypertrophy. The loud murmur is heard over the sternum, a little to the right and left, at about the second or third ribs, and is very audible posteriorly. There are some very loud murmurs, that are audible at a distance; these are more common in adults, and always systolic, generally attributed to hypertrophy and believed to be muscular. In a few cases, he thinks there is no increase and the phenomenon is due to torn and swinging papillary muscles. Not unfrequently the general condition is better than the noise would appear to suggest. Organic murmurs are not always audible, they may decrease with the increase of the pulse and may disappear from compensation or recovery; but the disappearance does not prove the murmur functional. Myocardial changes are mainly caused by anything that gives rise to hypertrophy and dilatation. The senile heart is very apt to exhibit hypertrophy and dilatation connected with atheromatous degeneration of the coronary and minute nutrient arteries causing muscular disturbance. What we call debility of the heart is due to a great many different conditions—intoxication, nephritis, etc. It is not functional, but is the result of organic lesions. In infants and children, myocarditis is mostly parenchymatous, and the most intense and persistent myocardial changes occur after la grippe and diphtheria. The alteration is never uniform, and that is why arrhythmia is so frequent; but no matter how many causes, either in the heart or nerves or distant organs, its most frequent origin is myocarditis. Special forms of arrhythmia are duplication of the heart sounds, which is a suspicious symptom, as it proves the exhaustibility of the heart muscle. Jacobi thinks it is apt to be caused by trouble in the myocardium, or lack of muscular myocardial coaptation.

22.—See abstract in THE JOURNAL of May 12, p. 1193.

23. Ibid.

24.—Ibid.

25. **Tropical Ration.**—Munson discusses the standards of diet and says that from the individual conditions that occur, we are obliged to use general averages, and he gives various tables showing the dietaries for different climates and their physiologic constituents.

26. **Use and Abuse of Phosphorus.**—Mettler restates the facts, as to the physiologic action of phosphorus in the system, and mentions its therapeutic uses. He considers it a reconstructive stimulant to all tissues and a special stimulant and nutritive to those of the nervous system. When required for the latter purpose the most satisfactory preparation which he has found is the phosphorus itself, prepared in elixir, or pill. For general tonic effects, he prefers the hypophosphites, especially the glycerinophosphates; while for gastric and hepatic troubles, acid salts are to be employed. Phosphate of soda is almost specific in its action on the liver, and in that class of mild neuroses dependent on hepatic insufficiency, he uses this first. He has found a small dose of phosphorus useful in certain forms of insomnia, due to an overtaxed and ill-nourished brain. In neuralgia, he has not found it very efficacious, but in functional impotence it is advantageous, as also in the early stages of locomotor ataxia. It is important, however, not to administer too large doses or continue it for too prolonged periods of time.

27.—See abstract in our Therapeutics Department this week.

29.—This article has previously appeared elsewhere: See title 88, p. 738, and title 82, p. 991.

35.—This article also appears in another journal: See title 151, this week.

44. **Esophageal Diverticulum.**—Two cases of this condition are reported by Richardson, both of which were successfully operated on, making a total of 16 patients thus treated, out of 56 that have been reported. The operation has been successful, and the only alternative to it, where this is impossible, is gastrostomy. In favorable cases after the removal of the pouch, the esophagus should be immediately sutured and the external wound, if closed, should be reopened on the first indication of infection. As a rule it is better to employ temporary wick drainage. Girard's method of invaginating the diverticulum, so that its internal surface projects into the esophagus, is mentioned, and he says that he has been successful with it in his practice, he, however, does not believe that it is advisable since it must produce more or less obstruction, and one that would seem more dangerous than the opening of the tube. The pathology and etiology are described, and while these pouches are called pressure diverticula, a constriction of the esophagus has not been observed in the cases reported, and so far as known, no recurrence has taken place after the excision.

45. **Post-Diphtheritic Stenosis of the Larynx.**—According to Rogers, the most common cause of post-diphtheritic stenosis, necessitating long-continued intubation, is a hypertrophy of the subglottic tissues, accompanied by a chronic in-

flammation. Intubation is not the cause, as it occurs without the operation, and less often there is an ulceration and subsequently a formation of cicatricial tissue and contraction. This can not be credited to the intubation as a rule, but it may follow tracheotomy. The frequency of the post-diphtheritic stenosis is, according to Dillon Brown, about 1 in 75 or 100 cases. Others have met it less frequently, and a reasonable estimate of the average in hospital experience would seem to be about 1 per cent.

46. **Surgery of the Stomach.**—Delatour reports several cases of gastrotomy and gastroenterostomy, and one of gastrectomy in which a patient lived twenty-one months and gave birth to a living child.

47. **Ligation of the Subclavian Artery.**—Halsted reports a successful ligation of the first portion of the subclavian artery for aneurysm of the third portion. The operation was complicated by the anomalous position of the subclavian vein, lying along the artery throughout its whole course, and the right subclavian seemed to start directly from the arch of the aorta. He attempted to perform the operation without resection of the clavicle, but believes that doing so would be generally advisable, as in his case he had to make a resection before he finished. This is, he thinks, the second case on record where the patient survived the operation; and so far there has been no appearance of the radial pulse since operation was performed.

52.—See abstract in THE JOURNAL of May 13, 1899, p. 1053.

53.—Ibid., April 28, p. 1070.

54. **Eye Defects.**—Huizinga calls attention to the need of watchfulness and treatment for conditions of visual defect that are very often neglected; and warns especially against consulting opticians instead of ophthalmologists for the remedy of these conditions.

55. **Albuminuria.**—The conditions in which albumin is present in the urine are pointed out by Kennedy: nephritis in its different forms, the functional albuminuria which occurs in the lithemic and hemoglobinuric forms and the neurotic type. He mentions last the extrarenal albuminuria, accompanying disturbances in the urinary organs, and cystitis, that may also be due to oxaluria.

56. **Malaria.**—The technique of examination for malarial parasites is described by Woldert, and the products which may lead to error in the diagnosis are mentioned. They are: the refractive bodies seen in the red corpuscles, the karyokinetic figures of the leucocytes, and the vacuoles and products of blood disintegration.

57. **The Electrocautery in Nose and Throat Diseases.**—Dabney has found the electrocautery useful in broad hypertrophies over the turbinated bones, with erection of the turbinated tissue, and in cases where there is loss of tone of the vasoconstrictors of the blood-vessels of that region. He rarely uses it on the septum, as only two conditions ever call for it; one a marked thickening of the so-called tubercle of the septum, where two or three linear cauteries have been useful; and the other frequent hemorrhages from erosion of the lower anterior part, not attributable to other disturbances of the circulation. He thinks, however, that it is less valuable in this condition than is claimed. In the throat, the conditions most helped by the electrocautery are the deep-seated follicular tonsil inflammation, the so-called "granular sore throat," mycosis of the fauces, and enlargement of the veins at the base of the tongue, and the so-called "lingual tonsil."

58. **Pancreatic Digestion.**—Rachford's paper is a study in comparative anatomy, showing the peculiarities of the bile and pancreatic openings into the small intestine in carnivorous and herbivorous animals, respectively. He thinks that the physiologic inference is that fats and proteids require a retarding in their passage through the duodenum, in order that they may be acted on by the bile and the pancreatic juice before they reach the alkaline succus entericus of the jejunum and ileum. This physiologic inference from anatomic facts is supported by laboratory experiments that have been previously published.

61.—This paper appeared elsewhere: see abstract in THE JOURNAL of April 21, ¶ 81, p. 991.

66. **Hyperkeratosis Lingualis.**—This condition, according to Goodale, consists histologically in a papillary enlargement and a small round-celled infiltration of the corium, together with protoplasmic reticulation, nuclear degeneration, and excessive keratin formation in the epithelium; the latter on its superior surface being prolonged upward to form filamentous processes, containing peculiar refractile pigmented granules, with which a characteristic bacterium stands in intimate association. It is of interest to note that the hypertrophy affects all layers of the mucous membrane and reaches its greatest development in the posterior and central portion of the dorsum. The condition appears to be primarily of the nature of a chronic inflammation with secondary alterations in the epithelial cells.

67. **Cysts of the External Auditory Canal.**—Somers describes a case where one of these cysts was removed. They originate: as retention cysts of the existing glands; or by the independent formation in the tissues, through softening and liquefactive changes, the material so produced compressing the cells in the immediate vicinity, and these undergoing changes, ultimately forming the cyst wall. Or they may be produced by collection of fluid between connective-tissue cells, these areas forming into one large cavity and the surrounding tissues combining into a retaining wall. Still another way is by the formation of the fibrous tissue wall around a foreign body. They are almost always located at the junction of the cartilaginous with the osseous canal, where the glands abound.

68. **Suprarenal Extract.**—Bates concludes, from six years' experience with suprarenal extract, that it is a powerful and unobjectionable astringent, but that it does not mix with other substances and must be prepared fresh whenever needed. In nose and throat disease other remedies should also be employed. He thinks that its being a natural secretion of the body prevents its causing physiologic disturbance, and that we have no other substance that can take its place.

75. **The Chemistry of Cow's Milk.**—This paper gives a careful comparison of human and cow's milk and the author's method of preparing infant food from the latter. He siphons from the bottom of a bottle of fresh milk, three-fourths of its contents into an ordinary double boiler, and adds 1½ teaspoonfuls of essence of pepsin, then warms slowly to blood heat and keeps it there until thoroughly curdled; then heats with constant stirring, until the temperature of 155 F. is reached, strains while hot, and dissolves in the whey a heaping teaspoonful of sugar of milk and the white of one egg. When this is cold he pours the sweetened whey back into the milk bottle and mixes it thoroughly with cream and top milk, and then pasteurizes the mixture. If this is found too laxative the quantity of milk sugar should be reduced. He has found this method a good one in most cases, and for the home modification of cow's milk for infants it is freely recommended.

76. **Hemorrhoids.**—Campbell operates for hemorrhoids by gradually dilating the anus and irrigating by the bichlorid solution. He then pulls the hemorrhoid out with forceps, severs the lower attachment with blunt-pointed scissors, and dissects it up from its submucous attachment until it is attached by a small pedicle containing the vessels. This is ligated with fine catgut and the hemorrhoid cut away. The operation is completed by suturing the incised edges with catgut and inserting a piece of iodoform gauze for drainage, with a sterilized gauze pad applied and retained by a T-bandage. The third day the bowels are opened by a suitable aperient, and this is continued as long as necessary. The patient sits up on the tenth day and is about on the fourteenth. He has found this uniformly satisfactory in twenty-five cases where he has used it. It does not produce the contused wounds and charred surface which are results of the ligature and cautery operations, and leaves a clean sutured cut and the rectal surface as complete and perfect as ever.

77.—See abstract in our Therapeutics Department this week.

80. **Hot Bath in Abdominal Diagnosis.**—The methods of inspection in abdominal examination are more or less interfered with by the rigidity of the abdominal wall, or sometimes

simply by its thickness. In such cases the patient is often anesthetized for the purpose of completely relaxing the tissues. Dock calls attention to a method that is not only safer, but truly superior to anesthesia for this purpose, which is simply immersing the patient in a hot bath. Its advantages are less risk, less disagreeableness, and complete control of the patient's respiration, thus calling into play the powerful action of the diaphragm. The only difficulty is that it requires a bath-tub and a large quantity of hot water; and that in cold weather the patient needs a gradual cooling before going out of doors. The bath-tub should be long enough for the patient to lie almost flat, or at least with his knees drawn up. The temperature should be gradually raised from 100 to 110 F., or even a little higher.

81. **Intraligamentous Growths.**—Hawkins describes these growths and reports eleven cases.

85. **The Longitudinal Wire Suture.**—The advantages of this method of suturing the opening in the radical operation for hernia are given by Harris, as follows: it can be easily and certainly sterilized, is of non-hygroscopic character, maintains an accurate coaptation of the edges without constricting the tissue within its grasp, and is easily removed after its functions have ceased. The wire is threaded to a curved, round, non-cutting needle and introduced along the edges of the structure. The first enters the skin about 1 to 2 cm. from the inner angle of the incision and passes directly down to the inner edge of Poupart's ligament. The needle takes a grasp of this structure not to exceed 1 cm. in length in a longitudinal direction, but so as to cross some of its fibers. It then enters the conjoined tendon and the inner edge of Poupart's ligament, thus going from side to side until the entire length is traversed. It then penetrates the external oblique and skin and comes to the surface 1 to 2 cm. from the outer angle of the incision. This is not an over-and-over stitch, for when the wire is pulled tight it is perfectly straight. Each grasp of the needle should be about 1 cm. in length and no kinks should occur in the wire. When there is considerable space external to the cord, caused by early divergence of the muscles from the ligament, it is advisable to take one or more grasps of the suture external to the cord. A sufficient opening should be left to permit the passage of the cord without obstruction. The first wire having been introduced, the cord, which has been held to one side, is now restored to its normal position. The second wire taking the edges of the divided external oblique passes from without inward, closing the wound over the cord, leaving but an opening for it to pass into the scrotum. The cutaneous edges are now closed by a third wire, and the operation is finished. The ends of the wire, which are left long, are folded over pads of gauze, and a strip of adhesive plaster crosses over each end of these, fixing them to the body so that they can not slip and draw out. Sterilized gauze dressing is then applied. This operation is applicable to a large proportion of cases of inguinal hernia, and the size is immaterial so long as we have firm tendon and structures.

95. **Chorea.**—Punton notes our lack of knowledge in the pathology of chorea and discredits the general belief of its necessary connection with rheumatism or endocarditis. Heart disease is more often found as a sequel than a cause, and he thinks that the disease is more important than it is generally considered, and believes that rest and arsenic are practically the best and most reliable remedies, used together with a general tonic treatment and attention to details.

97. **Pulmonary Complications of Typhoid Fever.**—Edson discusses the possibility of pulmonary disorders occurring with typhoid, and illustrates them by cases. He says that pneumonia is most frequent and may be a pure typhoid infection, and gives the points of diagnosis between such and the complicating pneumococcic disorders. The initial chill in typhoid is not so marked, there is less pain, dyspnea and cough, and if the sputum is not rusty the suspicion of typhoid is increased. Early diarrhea and enlarging of the spleen are in favor of typhoid, but only the trained judgment can make a perfect diagnosis before the rose spots appear or the Widal reaction is present. Other pulmonary disorders that may complicate typhoid are pleurisy, abscess, tuberculosis and catarrhal pneumonia, which is usually an avoidable complication.

98. **Climate and Treatment.**—Denison argues for the importance of climate in the treatment of tuberculosis, and thinks that it should stand first in the remedies to be used. Next to this he values outdoor life and exercise, then good feeding, medical supervision, inhalations, local medication, surgical interference, and special medication based on antitoxin treatment. However, in lasting results there is no single agency equal to suitable change of climate.

99. **Acute Coryza.**—The prevention of catarrhal disorders, according to Black, is best done by recognizing the fact that the skin is the natural covering of the body; and that we should not keep air away from it. He does not mean that we should go nude, but that the clothing should be such as will admit of a free passage of air to the skin. Underwear should be worn for only sanitary reasons and not for warmth. Wool should not be worn next the skin, but only for outer garments, while the material used for underwear should be linen, very loosely woven. The other clothing should be little heavier in winter than in summer, and when out of doors the overcoat should be in proportion to the severity of the weather. He claims he has put these theories into practice for five years with good results.

107. **The Therapeutic Use of Yeast.**—In 1899, T. Landau reported cases of leucorrhea treated with local applications of yeast, and Mitchell has followed up the method and gives an account of eight cases thus treated. The summary does not show the brilliant results obtained by Landau, but justifies continuing the trial of this method. Of the eight cases, only one was entirely unaffected and that was of syphilis and the discharge not of local origin. No unpleasant after-effects were noticed.

119. **Post-Febrile Insanities.**—Bauduy finds, from an analysis of the symptoms and literature, that in the etiology of post-febrile insanity we have heredity causing unstable nervous equilibrium; disorders of the nerve centers themselves, of which fever is often only a symptom; anemia, the result of febrile processes or excessive and prolonged temperature elevation causing irritable weakness; toxic pertubation of the nervous nutrition by the retaining of waste matter causing blood changes, and, lastly, microbic invasions of the nerve centers producing a cachectic condition of these organisms.

120. **The Fetal Theory of Eclampsia.**—Von der Hoeven supports the theory that the blood poisoning in fetal eclampsia is largely due to the toxins from the fetus. This would explain the fact of its greater frequency in the case of twins, and the other peculiarities of eclampsia in primiparæ. The intoxication of the child is often overlooked because of the special attention given to the mother, and the coma of the infant is mistaken for quiet sleep.

121.—This paper appeared elsewhere: see abstract in THE JOURNAL of April 7, ¶ 1, p. 863; also of April 14, title 125, p. 925.

123. **Nervous Prostration.**—Ranney reiterates his well-known views in regard to eye-strain as a cause of headache and other nervous symptoms, especially those that go under the name of nervous prostration.

124. **The Missile and the Weapon.**—This article is a medicolegal study of bullets and firearms. The author shows the peculiarities of bullets as affected by the arms through which they are sent, and also the facts that can be learned from inspection of the weapon itself.

130. **Hemoglobin Estimate.**—Tallquist describes a method which is mentioned in the eighth volume of "Nothnagel's Handbuch," and that consists in placing a drop of blood on a piece of filter-paper and letting it spread there, judging of the amount of hemoglobin from the strength of the color. He has made a scale which is illustrated here in this article. It consists of ten different colors with regular interspaces to about 10 degrees, each according to the hemometer; the strongest color corresponds to the normal blood, the lightest to that caused by pernicious anemia. The blood is obtained in the usual way, by pricking a clean finger, and the drop must

amount to enough to make the stain on the filter-paper show a 5 or 6 mm. diameter; it must spread equally and slowly and the examination must be made by direct light so that the comparison can be immediately after the stain has lost its humid gloss. It is necessary to make the examination by daylight, and the paper must be perfectly white and smooth, corresponding in thickness to about fifty-five leaves to 1 c.c. Tallquist notices the fact that in specimens of pernicious anemia of a high degree the color spot on the paper will appear surrounded by an uncolored or slightly colored ring. This occurs only when the number of blood-corpuscles has gone down to about half what is normal.

132. **Pernicious Anemia.**—Ball discusses the general subject of pernicious anemia, and mentions especially the ignorance of all authorities in regard to its etiology. In its beginning it is hard to recognize, for the blood condition is not marked until the anemia is considerably advanced. The prognosis should be extremely cautious; the morbid anatomy is not characteristic. The best treatment seems to be the use of increasing doses of arsenic, rest in bed, systematic feeding, massage for the muscles, and a daily flushing of the colon.

133. **Anesthesia.**—The conclusions deduced by Magaw from experience with over eleven hundred cases of anesthesia and from a study of the subject generally are: 1. Ether kills slowly, giving plenty of warning, while with chloroform there is not given time to say goodbye. 2. If ether is given with plenty of air and the drop method, there are few, if any, bad results. 3. Firmness with a hysterical patient assures the anesthetizer more success in gaining confidence of the patient. 4. An anesthetic is dangerous as long as it is in use. 5. The mortality can be diminished by the careful selection of the anesthetic. 6. The surgeon should make the choice. 7. In most cases where artificial respiration is resorted to, it is usually the fault of the anesthetizer or the method used.

148. **Facial Neuralgia.**—Belt recommends the placing of the hand, on the opposite side to that on which the neuralgia occurs, in a basin of hot water as hot as can be borne; and reports several cases of relief with this method.

151.—This article also appears in another journal: see title 35, this week.

FOREIGN.

British Medical Journal, May 5.

Secondary Suture of the Brachial Plexus. WILLIAM THORBURN.—The case reported is one of injury to the brachial plexus, situated in an accessible region of the neck external to the scalenus medius, the motor fibers above that level intact, those below it paralyzed and sensory fibers all paralyzed. The plexus was torn across and hopelessly contused in that region, but its roots were not torn away from the spinal cord. The operation was done by opening the posterior triangle of the neck, the clavicle pulled to one side, the main roots of the plexus dissected out of the cicatrix and the peripheral ends, to some extent artificially separated into five cords which were attached to the higher ends without tension. Four years after the operation there is partial return of motor power, with occasional sensation of heat and cold and at rare intervals pain; sensation exists in the arm, but the localization of touch is defective. The wasting of the muscles still continues to a certain extent, but improvement is even now progressing. The author thinks that it is probably the only case as yet recorded of secondary suturing of the brachial plexus.

The So-called "Stave of Thumb," or Bennett's Fracture. GEORGE THOS. BEATSON.—The author calls attention to the fact that fifteen years ago, E. H. Bennett proved that fracture of the metacarpal bone of the thumb is more common than that of any other of these bones, and that it is not as usually believed, "just above the middle," but is situated at the base of the bone. The fact has not received the recognition that it should and is hardly mentioned in modern text-books. It somewhat simulates a dislocation, and the pain and swelling that accompany it so mask crepitus that the injury is generally regarded as "sprain of the thumb," and the dislocation is serious. He reports a case in which the X-ray revealed the condition as described by Bennett, which was completely relieved by extending and thoroughly abducting the thumb and then applying a plastic splint to it. The point he calls attention to is that sprain of the thumb should be subjected to Röntgen rays, as otherwise Bennett's fracture is likely to be overlooked.

The Lancet, May 5.

Then and Now; or the Influence of Modern Surgery on Medical Practice. FRED J. SMITH.—After prefacing his remarks with some statements in regard to the possibility of zeal outrunning discretion in modern methods, which he illustrates by some of the prophylactic fads of the day, the author speaks of the progress which has been made in regard to cancer, and sums up by saying that we have gained but little in clinical diagnostic precision, much in scientific knowledge, and most of all in our power to smooth the path to the grave, by means of hypodermic medication and operative relief. In gastric ulcer he believes in operative interference if the hemorrhage reappears after a trial of medicines and remedies, and would urge it on the third repetition or confirmed persistence of hemorrhage. When the diagnosis is uncertain he would insist on rest in bed with "slop" diet, and if on resumption of active life the symptoms recur, he would suggest operation, and on the third recurrence, most strongly urge it. With gall-stones, he thinks an operation is required if there is a large stone, too large to escape by the natural routes, if there is an accumulation of smaller ones causing trouble and if any suppuration has occurred around a stone of any size. The question is to diagnose these conditions. The recurrent attacks of local pain, associated with jaundice or not, almost certainly associated with a gall-bladder large enough at least to be felt, are the strongest evidences of stone too large to pass and of the accumulations of the smaller ones. The symptoms of suppuration in this region are somewhat misleading and the presence or absence of leucocytosis would be of aid. In ascites he believes the proper method is to have the abdomen opened by the surgeon, when purges, diaphoretics, and diuretics have had a fair chance, or when there is no time to use them, owing to the urgency of the case. He thinks this better than tapping and more scientific, and it is far safer for the patient. He has never seen death arise from simple exploratory laparotomy, but peritonitis has occurred from paracentesis. It assists and clears up a doubtful diagnosis, allows removal of removable cause at one sitting and patients who are usually considered incurable have recovered after laparotomy. He thinks these five facts constitute an unanswerable case in favor of laparotomy against canular drainage, at least once in the course of every case. As regards appendicitis, he holds that we must operate instantly in fulminating cases, as soon as we are reasonably certain of pus in less acute ones, and after subsidence of the attack in milder ones. In the treatment of renal troubles, tuberculosis, if not generalized, should be very carefully diagnosed before interfering. We must ascertain by every means in our power which kidney is affected and if the other is sound. He would still advise a month's course of creosote treatment, which in his experience is the only drug method that has any influence on the tuberculous internal lesions. As regards stone in the kidney, when it is once definitely diagnosed, it is our duty to operate as speedily as possible before consecutive changes occur. Bacteriologic examination of the urine, administration of a few small doses of turpentin, and X-ray photographs are the means he mentions for the diagnosis. He does not think much of dietetic and water treatment, and believes a simple exploratory operation is justified in all cases.

Effect of Alcohol on Human Brain. VICTOR HORSLEY.—The author reviews the facts in regard to the influence of alcohol on the brain. The researches on the reaction period by Kraepelin are referred to, and they show that it is a depressant, although there may be a temporary increase of activity. The influence of the drug may be due to loss of cerebellar controlling influence as well as dissolution of the cortical cerebral constituents. The direct effect on the nerve cells themselves

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is noticed, and while the action is a chemical one, he shows from the researches of Nissl and others that its effect on them is direct. From a scientific standpoint, he believes that it can not be true that the small doses of alcohol such as people take at meals have practically no deleterious effect. From a scientific standpoint total abstinence must be the course, if we are to follow the plain teachings of truth and common sense. It is the part of the scientist to point this out and the part of the politician to adopt it as a whole.

Vasectomy Relative to Enlarged Prostate and Bladder Atony. REGINALD HARRISON.—The writer sums up his conclusions in regard to vasectomy as follows: 1. Vasectomy has been shown to be especially effectual in the earlier stages of prostatic hypertrophy in effecting shrinkage of the gland and the restoration of the natural process of micturition. 2. In cases where there is evidence to show that the prostate has in the course of degeneration assumed the form and structure of a fibrous growth the conditions are such, provided the symptoms of obstruction warrant the adoption of other measures than catheterism, as to render some form of prostatectomy preferable to either vasectomy or castration. 3. Where, as a consequence of sudden or protracted prostatic obstruction, secondary changes have taken place in the bladder itself, in the form of sacs, pouches, or trabeculation, the possibility of restoring its natural function by any means is extremely unlikely. Under such circumstances the induction of shrinkage of the enlarged gland will do good in affording a readier access for the catheter and in removing spasm, pain or hemorrhage connected with this or other similar processes. In a further communication he hopes to illustrate the practice of vasectomy under various conditions.

Bulletin de l'Academie de Medecine (Paris), April 17 and 24.

Diagnosis of Rabies in Dogs. NOCARD.—The lesions described by Van Gehuchten as specific of rabies in dogs (see THE JOURNAL, page 811) have been thoroughly investigated by others and Nocard reports that they were found constantly in dogs dying from rabies. But in animals killed at an early stage of the disease, the lesions were so slight as to be unreliable for the diagnosis. Consequently, when a person has been bitten by a dog in which these lesions are found, the diagnosis of rabies is imperative, but the absence of these lesions, when the animal was killed at once, does not convey any certainty that the animal was not rabid.

Vaccin from Goats. HERVIEUX.—The vaccin derived from cow-pox in the goat posesses approximately all the properties of vaccin from heifers, and Hervieux consequently recommends the goat for this purpose in countries where it is difficult to procure cattle. Tested on 250 soldiers in Kabyle the goat vaccin was successful in 78 per cent.; ordinary cow vaccin in 85 per cent.

Profound and Lasting Analgesia of the Eye with Dionin. A. DARIER.—In Darier's experience with iritis, keratitis, arthritic ulcers, iridocyclitis and episcleritis, accompanied with much pain, the application of ethylmorphin hydrochlorate or dionin, relieved and banished the pain in a few moments. A rapid improvement of the lesions was also noted in most cases. He found it very effective in a case of glaucoma, relieving the pain and improving vision from 1/16 to 1/4 in thirty minutes. He instills a 5 per cent. solution, two or three drops every few minutes until chemosis occurs. It smarts at first and then all pain is relieved. The result was negative in only one case in his experience, and in this no chemosis occurred; the patient was evidently refractory. The action of the dionin is strictly local.

Bulletin de la Soc. Med. des Hop. de Paris, April 5.

General Arsenical Melanodermia. ENRIQUEZ.—A few instances are on record of a general pigmentation resembling Addison's disease, but less diffuse, appearing in spots and patches while respecting the extremities and face, which followed the prolonged use of Fowler's solution. In an observation described in the *Bulletin* last June, and in another more recent issue, the pigmentation still persists, although less intense, notwithstanding suspension of the arsenic. In the latest case the melanodermia was accompanied by dryness of the throat and slight conjunctivitis, and the hands and feet assumed a lichenoid appearance.

Further Facts to be Learned with the Methylene Blue Test. F. WIDAL.—The author describes the modifications in the renal permeability of a patient, "more cardiac than Brightic," under the influence of medicinal and hygienic measures. The permeability of the kidneys for potassium iodid, at first subnormal, was restored to normal with milk diet, rest and theobromin. Methylene blue was not eliminated at all at first, but permeability improved until the blue appeared in the urine in an hour. C. Achard and A. Clerc have been studying absorption and the influence of medicines, by means of the blue test on normal subjects and others with interstitial or lead nephritis, who took each morning, fasting, a pill of 5 cg. of methylene blue, for several days. The curves show that the normal subjects eliminated the largest proportion at first, followed by a period during which all eliminated alike, and then elimination ceased in the normal but continued for a while in the rest. The period of elimination varied from forty-seven or fifty hours in the normal to eighty or 186 in the nephritic subjects. The uneliminated blue evidently accumulated in the blood in the latter, at first, until the blood became so concentrated that the same amount of blue passed through the kidney—without any change in its permeability—as passed in normal conditions without the previous accumulation in the blood. This mechanism suggests the need of caution in estimating the condition of renal permeability from elimination of the normal principles of the urine. They may become accumulated in the blood in case of deficient permeability, and then be eliminated in approximately normal amount, even with complete suppression of the functions of one kidney.

Presse Medicale (Paris), April 25 and 28.

Pulmonary Gangrene After Gastroenterostomy. J. L. PEYROT.—Pulmonary or pleural accidents in the course of cancer of the stomach have been noted, and attention has been called to their exceptional frequency after gastroenterostomy. An observation is described in which pulmonary accidents followed a successful gastroenterostomy for commencing cancer of the pylorus accompanying an old gastric ulcer. Bronchopneumonic foci in the right lower lobe first appeared, then adjacent serofibrinous pleurisy, then putrid evolution of the bronchopneumonic foci and perforation of one into the pleural cavity, with sudden, fatal pneumothorax. The writer ascribes this train of accidents to septic emboli from the gastric ulcer, the microbes probably mobilized more or less by the operation. The gangrenous foci had many points of resemblance with pulmonary infarcts: site, shape, etc., and also recalled the gangrenous pulmonary foci of embolic origin noted in the course of otitis of the middle ear in children. Whether microbian infection proceeds by way of the veins or lymphatics the lung is soon reached, and its capillary system arrests the infection and serves as a filter to prevent general septicemia. The accidents in these cases are similar to the pulmonary granulia observed sometimes after curetting a peripheral tuberculous focus, but in the former instance, the mobilized microbes are anaerobic saprophytes, microbes of putrid fermentations, such as flourish in old gastric lesions and alimentary stasis. The process described is evidently one of the most important reasons for the high mortality after surgical intervention on the stomach. It also suggests the advisability of thorough lavage of the stomach before operating and the benefits of an exclusive milk diet for a few days beforehand; also the necessity of waiting several days before returning to alimentation through the mouth. Although the peritoneal serosa may be amply cicatrized in forty-eight hours, the gastric mucosa is open to microbian infection.

Technique of Radiography of Fractures. G. CONTREMOULINS.—Conditions should be identical and determined beforehand, for radiographic interpretation to be exact and capable of comparison. This result can be obtained by having a perpendicular line from the Crookes' tube always coincide with the center of the plate and pass through the center of the fracture. By this means the misleading effect of the oblique

rays will be abolished and the position of the bones accurately shown. Two radiographs at 90 degrees, one anteroposterior, the other lateral, will thus give accurate information in regard to the fracture, and can be repeated indefinitely with identical results. If impossible to get the member in the perpendicular line, the tube and plate can be slanted, but always retaining the same relative position.

Functions of the Kidney in Chronic Nephritis. LABBE.—Recent research has demonstrated that there is no constant relation between uremia and renal impermeability; impermeable kidneys without uremia have been noted and also uremia with permeable kidneys. Likwise it has been shown that there is no connection between uremia and the toxicity of the blood serum. The cause of uremia, therefore, can not be sought exclusively in toxic retention from renal impermeability. The toxicity of renal extract and the vasoconstrictive properties of renin have been established, and increased diuresis and excretion of urea have been observed to follow the administration of nephrin. Albarran and L. Bernard have noted that double nephrectomy is twice as rapidly fatal as double ligature of the ureters. These facts indicate that the kidney has two functions: an external, the elimination of urine, and an internal, of which little is yet known. The phenomena due to disturbances of the first function, renal impermeability, are toxic accidents, cephalea, Cheyne-Stokes, disturbances in digestion, redness and dryness of the mouth, vomiting, diarrhea, hiccough, and mechanical cardiovascular accidents characterized at first by arterial hypertension, succeeded by arterial hypotension with asystolic edema. The syndrome dependent on the insufficiency of the internal function of the kidney is characterized by edema and albuminuria, impossible to connect with renal impermeability. The theory of hydremia or loss of the osmotic balance does not explain the production of edema. The combination of these two syndromes constitutes "renal insufficiency." "Uremia" is produced when to this are added infections and functional insufficiency of other organs: liver, heart, lungs. The syndrome of impermeability is seen in the interstitial nephritis of Bright's disease. Parenchymatous nephritis at first presents only the syndrome of insufficiency of the internal function, on which the other syndrome is superposed later. The permeability of the kidney is therefore not the only factor to be taken into account in determining the prognosis of chronic nephritis, the clinical manifestations must supplement it. Another point learned from late research is that toxic medicines can be employed in certain cases of nephritis with permeable kidneys.

Progres Medical (Paris), April 28.

Babinsky's and Schaefer's Signs. H. VERGER.—The value of these signs in the diagnosis of cerebral affections was thoroughly tested at the Bordeaux clinic, with the result that they are found less important than claimed by their authors. Babinsky's sign—extension instead of the usual flexion of the toes on excitation of the sole of the foot in case of hemiplegia—was found quite constant in cases of disturbed function of the pyramidal tract, but it requires extremely delicate maneuvers to produce it satisfactorily and it is too variable from one subject to another and even on the same patient to constitute a symptom of much importance for the diagnosis. Schaefer's sign—extension of the toes instead of flexion, when the Achilles tendon is pinched very hard in case of hemiplegia—was found to have no semeiologic value as an indication of a cerebral lesion.

Semaine Medicale (Paris), April 11, 23 and 28.

Infectious Icterus. A. CHAUFFARD.—The pathologic physiology of a typical case of infectious icterus in a young butcher was made the subject of careful study, and the apparently simple disease with recovery in a month, disclosed complex processes that would have escaped casual observation. First there was incitation and functional hyperactivity of the hepatic cell, then exaltation of its ureogenic power, followed by diuresis induced by the elimination of enormous quantities of urea (146 gms. of urea in 5 liters of urine during the first twenty-four hours after entering the hospital, tenth day of disease), leading to secondary dehydration and hyperdensity of the blood. Knowledge of these conditions imposed treatment to restore to the blood the normal proportion of water it had lost. A liter of artificial serum was injected subcutaneously each day for three days, then per rectum for four days, then one-half the quantity for a day or so, by which time the patient had become hydremic and the artificial serum was suspended. Chauffard asserts that the exact moment of commencing convalescence in acute diseases can be determined by the weight. As soon as the weight ceases to diminish or remain stationary, and commences to increase, convalescence is established.

Vertebral Manifestations of Typhoid Fever.—The four recorded cases of typhoid spondylitis commenced abruptly during convalescence or a few weeks after recovery from typhoid fever, with intense pain and sensitiveness in the lumbar region of the spine, accompanied with fever, great weakness in the lower limbs, and lancinating pains. Knee-jerk was abolished and in one case continence of urine and feces. There was tumefaction in the painful region in two. All recovered. The serum test proved useful in differentiating. If the pains are bearable, rest in bed and sodium salicylate may be effectual, but intense pain requires a plaster cast which relieves at once and arrests the progress of the osteomyelitic process.

Centralblatt f. Chirurgie (Leipsic), April 14.

Head Covering for Aseptic Operations. K. SCHUCHARDT.—A light, springing metal band, 2 cm. wide, fits over the head from the eyebrows to the base of the hair. It has a small plate at each end and a projecting button at the crown of the head. The lower part of the face, including the end of the nose, is then covered with a strip of gauze, 110 by 45 cm. square, the upper corners drawn smooth and buttoned to the button on the metal band. A triangular piece of gauze is then put on the head, one straight edge 150 cm. in length, across the forehead above the eyes, and the two side points tied together behind over the third point. The head, beard and face, except the eyes, are thus completely covered. The gauze never slips out of place, and scarcely interferes with the breathing. The simplicity and security of the contrivance and the ease with which it is put on, impel Schuchardt to recommend it in high terms, insisting that asepsis is not possible when hair and beard are exposed. Surgeons, attendants and nurses in his service all wear this head covering, which is also useful in caring for the sick and in disinfecting rooms.

Deutsche Medicinische Wochenschrift (Leipsic), May 3.

Improvement in Serumtherapy. A. WASSERMANN.—Ehrlich has shown that the bactericidal effect of bactericidal immune sera is due to the presence of two distinct substances, one serving to kill the bacteria, and the other serving merely to fasten the former to the bacteria. Each is powerless without the other in proportionate amount. He calls the substance which fastens the bactericidal substance to the bacteria, the "between" or "immune body," while he applies the name of 'end body" or "complement" to the directly bactericidal substance, which is probably some kind of a digesting ferment. Buchner gave the name of "alexin" to the bactericidal substance in normal serum to which he has called attention. The "between body" is not found in the normal organism in proportionate quantity. It does not appear in large amounts until evolved during the process of immunization or spontaneous recovery from the infection in question, and this is what constitutes an "immune serum." This analysis shows that two factors are required to cure an infection by means of a bactericidal immune serum: 1, a sufficient amount of the "between body," i. e., of the immune serum, and 2—which is equally important—a sufficient amount of the end body, i. e., of the substance which is fastened by the "between body" to the bactericidal cell and then destroys it. If the amount of either of these substances is less than required, the infection proceeds unmolested. Wassermann states that in all previous serumtherapy only one of these factors, the "between body"—the immune serum—has been taken into account. This was supplied to the infected organism in abundance, but the need for the second, the complementary factor, was overlooked. The only benefit derived was from the co-operation of the abundant "between body" with the small amount of the corresponding

bactericidal end body which it found already present in the organism. When this was used up, the "between body" had no further sphere for its usefulness. Wassermann therefore considers it rational that both "between body" and end body should be supplied in serumtherapy, and he accomplishes this by injecting normal serum simultaneously with the immune serum. His experimental results have brilliantly confirmed the correctness of his premises. He compares the mechanism of the process to interlocking wheels. The "between body" is the intermediary between the end body wheel and the bacteria wheel. Each is useless without the rest, and all are useless unless the interlocking wheels have exactly the requisite number and style of teeth. Or, to use Fischer's simile of a lock and key, certain "between bodies" fit into certain end bodies and into certain bacteria, and not into others. Future research must determine which end bodies are best adapted to co-operate with certain "between bodies" and the kind of infection in which they are most active. It by no means follows that typhus immune serum, from an immunized horse, will co-operate with the end bodies in normal serum from a goat, for instance. The correct complements for given immune sera must be sought which will not only fit the "between body" and the bacteria, but will also escape being bound or destroyed in the infected organism. In his experimental research he found normal serum from beef cattle answered his purpose, and announces the important fact that guinea-pigs injected with three loops of living typhus culture and then injected in a half hour with .5 c.c. of typhus immune serum mixed with 4 c.c. of fresh, normal beef serum, all survived in good health, while control tests with normal serum or immune serum alone all terminated in the death of the animal in twenty-four hours. "The addition of fresh end bodies—the bacteria-destroying substance—derived from normal cattle, immeasurably increases the infection-arresting power of our immune sera, and thus enhances the possibility of curing with them an existing infection in man."

Red Bone-Marrow and Myeloblasts. O. NAEGELI.—The bone-marrow cells without granules are not lymphocytes but specific elements of the bone-marrow, according to the conclusions of Naegeli's research. He suggests the name of myeloblasts for them, as they are undoubtedly the preliminary stages of the myelocytes and possibly also of other marrow elements. They are characterized by the absence of granules and nucleoli, and the reticulated nucleus, which is more strongly basophile than the protoplasm. They vary from the size of a lymphocyte to that of a myelocyte. The smaller have round nuclei, richer in chromatin; the larger, oval nuclei, with more protoplasm. The myeloblasts are the phylogenetic and ontogenetic ancient primitive form of marrow cells. They remain even in the adult, as the preliminary stage of myelocytes. They are involved in the pathology of the bone-marrow, as they appear predominantly in case of pernicious anemia—retrogression of the blood-formation into embryonal conditions, megaloblastic and myeloblastic marrow—of typhus—paralysis of the function of the bone-marrow—and of myelogenic leukemia. They increase to a slight extent in many other diseases, especially in secondary anemia—carcinoma, tuberculosis. The myeloblasts may pass into the blood, and are found numerous in it in cases of myelogenic leukemia.

Report of German Malaria Expedition. R. KOCH.—In concluding this third report Koch states that his tests of prophylactic doses of quinin have shown that an interval of seven days after two "quinin days" is sufficient to prevent relapses. His method of treating malaria is, therefore, to give the patient, when free from fever, usually in the early morning hours, one gram of quinin, repeated every day until the malarial parasites have disappeared from the blood. Then follows a pause of seven days, then two more quinin days, then the seven-day pause and two quinin days, and so on for two months at least. The results have been most excellent. In a few cases gastric disturbances prevented absorption and subcutaneous injections of the quinin were resorted to. The hospital at Stephansort has been almost cleared of patients, but time alone will show whether this is due to his prophylactic measures or is merely a transient lull. There have been very few new cases, although the weather and work is most favorable for malarial infection, and anopheles abound. He observes that the experience of persons coming from a non-malarial region to live in a malarial is similar to that of the children born in the latter. They all become infected, but after three or four years acquire a sufficient degree of immunity. The Europeans at Stephansort must have all come from non-malarial regions, as none escaped infection, the first attack of fever appearing in three or four weeks after their arrival on the coast. He adds: "the only exceptions to this rule are the two members of the malaria expedition who have remained free from infection to date, undoubtedly owing to their systematic prophylactic use of quinin." He outlines the history of the colony in regard to malaria, as follows: it must have existed among the natives for a long time, possibly brought originally from the Malay archipelago or the Moluccas by traders. The first Europeans who visited the country, and especially the first immigrants, must have paid a heavy tribute to this infection. But gradually the prospects beame better as the emigrants became more and more immune. Then the physicians began to report that in consequence of this or that sanitary measure, or increasing agriculture, etc., "malaria is diminishing." But suddenly it breaks out again; not as the reports announce, in consequence of certain meteorologic conditions, but every time when a large number of new and freshly susceptible workmen are imported. They have to acquire, in the same way as the children of the country, their gradually won immunity which enables them to live permanently in a malarial region. The sacrifices may be great in some instances; 125 died out of 273 Chinese brought from Hongkong in 1898, the majority from malaria, and many of the survivors are still under the influence of the infection. Similar catastrophes are liable to occur whenever susceptible persons are brought to the colonies unprotected by prophylactic measures. He concludes by stating that if his assumption is correct, that malaria is restricted to man, then it will prove possible, by exterminating the parasite in man to cut the life thread of malaria, as it were, and accomplish its gradual disappearance. Working toward this end he instituted treatment as above described for every one in whom the malarial parasites were discovered.

Wiener Klinische Wochenschrift, April 19.

Cause of Initiation of Birth Act. J. THENEN.—After reviewing and rejecting all other theories advanced to date, Thenen explains the mechanism of the birth act and the phenomena of pregnancy in general as the specific reaction of the female organism to the stimulus of the living fecundated ovum. This reaction consists, in the uterus, of changes in size, etc., and also in a specific functional behavior, which holds the natural tendency to contraction in check. The placenta reaches its maximum of growth by the thirtieth to thirty-fourth week, and then ceases to grow. The blood with which it is supplied passes first through the fetus, which appropriates its most nourishing elements, and the placenta fails to receive sufficient nourishment and hence degenerates after the thirty-fourth week. As the retrogressive phenomena in the placenta become more and more marked, the close, vital connection between fetus and maternal organism hitherto existing is interfered with. The placenta degenerates more and more, finally the specific stimulus transmitted through it by the ovum ceases to be felt by the uterus, which then returns to its normal physiologic behavior and expels what has become a foreign body, no longer a vital part of itself. Febrile affections, mechanical irritation, etc., induce contractions of the uterus which may hasten the retrogression of the placenta and actual labor pains occur as the vital connection between fetus and uterus becomes severed.

Influence of Alcohol on Reducing Power of Urine. A. GREGOR.—The reducing power of the urine is increased by alcoholic drinks, especially beer, due exclusively to the alcohol contained in them. This increasing reducing power should be credited chiefly to grape-sugar, although all the reducing substances, creatin, etc. are also evidently increased.